

## **Historic, Archive Document**

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VOL. XVII. NO. 12.

JUNE 15, 1839.

PEACE ON EARTH  
& GOOD WILL TOWARD MEN

SALE NEW

# BEE CULTURE

DEVOTED  
TO  
THE

& HOME INTERESTS.

MEDINA OHIO  
BY  
A. ROOT

TERMS, ONE DOLLAR PER YEAR.

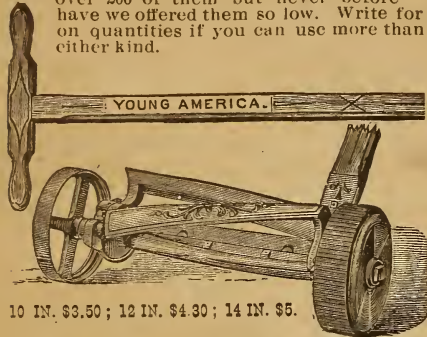
ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.



## YOUNG AMERICA

### LAWN MOWER.

The cheapest machine offered anywhere. Many prefer them to one with two drive wheels because they run so easily, and are so light. They are just right for running among the hives. For the ladies who appreciate outdoor exercise you could have nothing better than a 10-inch Young America lawn-mower to keep the grass down on the lawn. We have sold over 200 of them but never before have we offered them so low. Write for prices on quantities if you can use more than one of either kind.



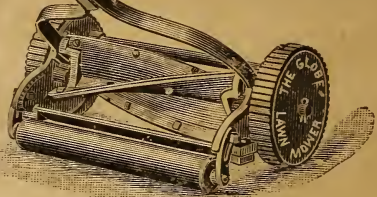
10 IN. \$3.50; 12 IN. \$4.30; 14 IN. \$5.

## THE GLOBE LAWN-MOWER.

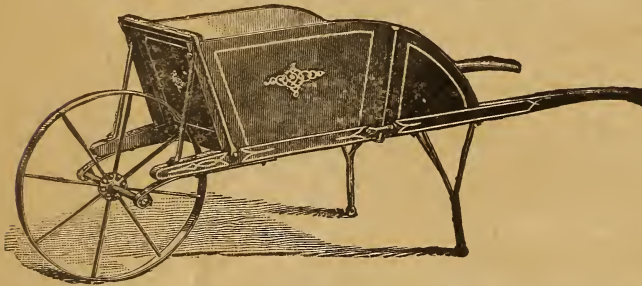
Guaranteed a First-Class Machine. The Globe lawn-mower shown in cut combines all the best features, and is a first-class mower in every respect. Having only three knives it will cut longer grass than those having four. The axle of the drive wheel does not project, so that you can run close to the hive. It has two drive-wheels and roller, and the driving gears are simply perfect. The prices are very much lower than on any other first-class mower.

### TABLE OF PRICES:

	LIST PRICE	OUR PRICE
10 in. Globe	\$13.00	\$4.90
12 " "	15.00	5.70
14 " "	17.00	6.50
16 " "	19.00	7.20
18 " "	21.00	8.00



## OUR DAISY WHEELBARROW.

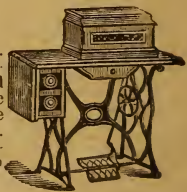


Who has not felt the need of a **Light, Strong, and Durable**, and at the same time **Cheap** wheelbarrow? The cut shows one that combines all these qualities better than any other we have ever seen. We have two sizes—the smaller one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk.

The springs are oil-tempered with adjustable bearings, so the wheel will always run free. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size No. 3 is only \$1.00; the larger size No. 2 is \$4.25. Over 200 sold in 8 months.

## SINGER SEWING-MACHINE, \$11 TO \$16.

Made from latest models; first class in every respect, and warranted for 5 years. A boon to many an overworked housewife who can not afford to pay the price usually asked by agents. Cut shows No. 3. No. 1 is the same without the cover, leaf, and two drawers. Price \$11.00. No. 2 has a cover, but no leaf or side drawers. Price \$12.50. No. 3, as shown in the cut, price \$14.00. No. 4, same as No. 3, with 2 more drawers to the right. Price \$15.00. No. 5 has 3 drawers on each side. Price \$16.00. Wood parts are oil polished, walnut; balance-wheel is nickel plated, and each machine includes a full set of attachments, with instructions for use. We ship them direct to customers from factory in Chicago.



## BUCKEYE SASH-LOCK.

A DEVICE TO FASTEN WINDOWS UP OR DOWN AT ANY POINT

For many years I have been trying to get something better to hold a window up than a stick or book, or something of that sort; but although we have tried them, even paying as high as 75 cts. per window, I have never had any thing please me so well as the one here shown. This device holds the sash securely by friction in any desired position, as tight as if it were in a vice. It prevents the sash from rattling, and excludes the dust by making tight joints, and yet it does not mar the wood. It is put on with two screws, and can be fitted by an inexperienced hand in three minutes. It works equally well on upper or lower sash, with or without weights. Printed instructions are furnished with each one, as well as screws to fasten them on with, and yet the price is only 5 cts.; 1 doz. for 50 cts.; 100 for \$4.00. If wanted by mail, add 5 cts. each extra. The above are japanned.



A. I. ROOT, Medina, Ohio.

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## CONVENTION NOTICE.

The Minnesota bee-keepers' convention will meet at the State Experimental Farm, June 26. All interested are cordially invited.  
WM. URIE, Sec'y.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary.  
R. F. HOLTERMANN, Sec'y.

Brantford, Ont., Can.

## UNTESTED ITALIAN QUEENS,

Reared from imported mothers, good as the best; one, 85c; three for \$2.00. W. P. DAVIS, Hyatt, N. C.

**FOR SALE.**—Italian queens, tested, at \$1.00 each, 6 for \$5.00; untested, 75 cents each. No foul brood. 121td L. A. RESSLER, Nappanee, Ind.

Chas. A. Stockbridge, Fort Wayne, Ind.

Manufacturer of and Dealer in

STOCKBRIDGE'S SIMPLICITY BEE HIVE,

Sections, Frames, Smokers, Comb Foundation, &c.

Mention this Paper.

Send for Price List.

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.  
See advertisement in another column.

## BY RETURN MAIL.

After June 8, 100 of J. F. Wood's warranted Italian queens, at \$3.00 per dozen. If less than one dozen are wanted, 75 cts. each is my price. I wish to call special attention to the fact that I have control of all bees within three miles of my apiary, and can largely control the mating of my queens with the drones I choose. I did not have one per cent of my queens mated last season, hence I am able to warrant every queen without extra charge. Every queen that proves to be mated will be replaced by a select tested queen, suitable for a mother-bee. Safe arrival guaranteed, and queens warranted to be as good as those of any first-class breeder. All letters will receive my personal attention as soon as received.

JAS. F. WOOD,

North Prescott, Mass.

11-12d

In responding to this advertisement mention GLEANINGS.

## UNTIL FURTHER NOTICE.

Select tested Italian queens, \$1.00. Standard breeding queens, \$2.00. Imported, fine and prolific, \$6.00.

R. H. CAMPBELL,

10tfdb

Madison, Morgan Co., Ga.

In responding to this advertisement mention GLEANINGS.

QUEENS! QUEENS!

\* ELLISON'S \*  
ALL ITALIANS

JUNE AND AFTER.

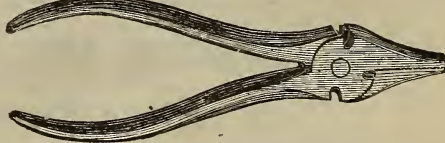
1 untested queen.....	75
3 " " ".....	\$2.00
1 tested " ".....	1.50
3 " " ".....	4.25
2 and 3 frame nuclei. Safe arrival guaranteed. Wholesale rates on application.	
W. J. ELLISON,	
Stateburg, Sumter Co., S. C.	
11-14db	

In responding to this advertisement mention GLEANINGS.

## Look Here! Supplies Cheap.

Albino queens and bees, Chaff hives, improved L. hives, Simplicity hives, Section Boxes, Extractors, Smokers, Reversible Frames, Root's perforated zinc. Write for price list.  
A. A. BYARD,  
11-12d West Chesterfield, N. H.

## BUTTON'S PLIERS and WIRE SHEARS.



## DECLINE IN PRICE.

We are pleased to quote the following reduced prices on Button's pliers, which you will find much lower than former prices:

Post.	Length.	Each.	Price.		
			10.	100	1000
4	4 1/2-inch Button's pliers	.....	4.50	41.00	
6	6-inch " "	.....	.60	5.40	50.00
10	8-inch " "	.....	.75	6.75	62.00
17	10-inch " "	.....	1.20	10.80	100.00

The 4 1/2-in. will cut No. 14 wire and smaller.

" 6 " " " " " "	" 12 " " " "
" 8 " " " " " "	" 10 " " " "
" 10 " " " " " "	" 12 " " " "

A. I. ROOT, Medina, Ohio.

## PASTEBOARD BOXES,

Or Cartons, for One-Pound Sections.



Bee-keepers are realizing more and more the value of these cartons for putting their comb honey in marketable shape. Other articles of home consumption are put up in a neat attractive way, and in shape to be handed to the customer, and carried safely without wrapping. Why not sections of comb honey, especially when the cost of the boxes is so low?

## TABLE OF PRICES OF 1-LB. SECTION CARTONS.

Name or designation.	Price of 1	25	100	500	1000
1-lb. carton, plain.....	.20	.60	2.75	5.00	
1-lb. carton, printed one side, name and address.....		.90	3.50	6.00	
1-lb. carton, printed on both sides, name and address.....		1.00	3.75	6.50	
1-lb. carton, with lithograph label, one side.....	3	.30	1.00	4.50	8.50
1-lb. carton, with lithograph label on both sides.....	3	.40	1.30	6.25	12.00
1-lb. carton, with lithograph label one side, name printed.....		1.30	5.25	9.50	
1-lb. carton, with lithograph label, printed with name on both sides, Lithograph labels, 2 designs, for 1-lb. cartons.....		.35	1.60	3.00	

If sent by mail, postage will be 2 cts. each; or in lots of 25 or more, 1 cent each. All the above have tape handles. Price, without tape handles, 5c per 100, or 50c per 1000 less. The quality of the boxes is fair, being made of strawboard, plated outside. If more than 1000 are wanted, write for prices.

A. I. ROOT, MEDINA, O.





## SECTION PRESS.

PRICE \$2.00.



For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to

WAKEMAN & CROCKER, Lockport, N. Y.

In responding to this advertisement mention GLEANINGS.

### FOR SALE.

Sections in bushel boxes, No. 1, \$3.00 per M. Japanese buckwheat; a complete S. or L. hive for comb honey, 75c; shipping-crates, and all kinds of supplies cheap. Price list free.

W. D. SOPER, Jackson, Mich.

**ITALIAN BEES AND QUEENS.** Tested queens, \$1.50. Untested, \$1.00. Bees, per lb., \$1.00. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list.  
MISS A. M. TAYLOR,  
9-10tfdb Box 77. Mulberry Grove, Bond Co., Ill.

In responding to this advertisement mention GLEANINGS.

## PURE ITALIAN QUEENS

FROM THE APIARIES OF

**J. P. CALDWELL,**

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	June	to Oct.
Select tested.....	\$4 00	\$3 75	\$3 25	\$2 75	
Tested.....	3 00	2 75	1 75	1 50	
Untested.....		1 25	1 00	1 00	
6 Untested.....		5 50	5 00	4 50	
12 Untested.....		9 50	9 00	8 50	

Contracts taken with dealers to furnish queens by the week at special rates. Address

5-21db J. P. CALDWELL, San Marcos, Tex.

In responding to this advertisement mention GLEANINGS.

## FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars. DR. A. B. MASON,  
9-14db Auburndale, Ohio.

## SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

**R. B. LEAHY & CO.,**

3-14db Box 11. Higginsville, Mo.

In responding to this advertisement mention GLEANINGS.

## A Four-Color Label for Only 75 Cts Per Thousand!

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

## Italian Queens by Return Mail.

Tested, \$1.00; untested, 50c each, or more at same rate. 10tfdb I. GOOD, SPARTA, WHITE CO., TENN.

AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION. See advertisement in another column.



**Eaton's Improved SECTION CASE.**

BEES AND QUEENS. Send for free catalogue. Address  
FRANK A. EATON,  
5-16db Bluffton, Ohio.

In responding to this advertisement mention GLEANINGS.

## Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

**WANTED.**—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.  
21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

**WANTED.**—To sell or exchange, Italian bees and queens, and supplies. Address  
OTTO KLEINOW,  
4tfdb No. 150 Military Ave., Detroit, Mich.

**WANTED.**—To exchange old copies of GLEANINGS IN BEE CULTURE for bee-keepers' names and addresses, plainly written. I will send 3 copies (as long as they last) for each half-dozen names sent to me from anywhere in Nebraska or Dakota. I will not agree to send any certain number from 1879 to 1888. J. M. YOUNG, Box 874, Plattsmouth, Neb.

**WANTED.**—To exchange one 46 inch Standard Columbia bicycle, as good as new, with the exception of finish being worn a little. Cost, when new, \$80.00. I want a Barnes improved combined machine, consisting of circular and scroll saw, and boring attachment; also want bee-supplies. For particulars, address J. A. PULLIAM, Leasburg, N. C.

**WANTED.**—To exchange one 10-inch Pelham fdn. mill, good as new, for Toulouse geese, Scotch Collie pup, or double-barreled breech-loading shotgun. A. D. D. WOOD, Rives Junction, Mich.

## Black and Hybrid Queens For Sale.

Black and hybrid queens for sale, 30 and 50 cts. respectively. J. A. KIME, Fairfield, Pa.

FOR SALE.—10 hybrids and 2 black queens.

A. W. SPRACKLEN, Cowden, Shelby Co., Ill.

Those having hybrid or black queens for sale, please notify O. R. COE, Windham, Greene Co., N. Y., stating number of each, and lowest price, cash in advance, for the entire lot.

Hybrid queens at any time, from pure mothers, at 40 cts. each. Order when needed.

W. M. VICKERY, Hartwell, Hart Co., Ga.

FOR SALE.—A few black mismated Italian queens one and two years old, at 10 cts. each. Tested, three or four years old, 25 cts.

L. J. TRIPP, Kalamazoo, Mich.

Two black queens, good layers, in Peet cages, 20c. A few mismated Italians at 35c.

S. F. & I. TREGO, Swedona, Ill.

I will send 5 hybrid queens, all last year's rearing, for \$1.00.

E. C. EAGLESFIELD,  
Berlin, Green Lake Co., Wis.



## HONEY COLUMN.

### CITY MARKETS.

ST. LOUIS.—*Honey*.—There is about the same amount of honey as usual on the market at this season of the year, mostly of low grade. Choice white-clover honey, 1-lb. sections, 14@15; fair buckwheat, 12@13. Extracted, white clover, in cans, 7@8c; bbls., 6@7; Southern, 5@5½ for good; dark, 4½@5. *Beeswax*, prime, 23c. W. B. WESTCOTT & Co.,  
June 10. 320 N. Main St., St. Louis, Mo.

CHICAGO.—*Honey*.—The old crop is about exhausted, and not any new has been offered, especially is the foregoing applicable to the state of the comb-honey market. Extracted, very little demand; prices 7@8c. *Beeswax*, 25c. and scarce.  
H. A. BURNETT,  
June 10. 161 S. Water St., Chicago, Ill.

NEW YORK.—*Honey*.—Our supply consists of extracted California only, quotable at 7@7½c. New Southern is sold as fast as it comes in. Orange blossom, at 7¼@7½c per lb. Lower grades at 65@70c per gallon. *Beeswax*, 27½c.  
F. G. STROHMAYER & Co.,  
June 10. 122 Water St., N. Y.

MILWAUKEE.—*Honey*.—This market is good for the season. Prices are firm on good qualities, either extracted or comb. The old crop is being closed out. We quote 1-lb. sections, white, 15@16c; 2-lb., nominal; 1-lb., dark, 12@13. Extracted, white, in tin pails, 9@10; in kegs and half-bbls., 8@9; medium, in kegs and half-bbls., 7½@8. Dark wanted, 5c. *Beeswax*, firm, 25@28. A. V. BISHOP,  
June 6. Milwaukee, Wis.

NEW YORK.—*Honey*.—Extracted honey is in good demand. We quote fine orange bloom at from 7@7½. Lower grades and off quality, at from 65@70c per gallon. *Beeswax*, very scarce. A good article will sell on arrival at from 26½@27½.  
HILDRETH BROS. & SEGELKEN,  
June 6. 28 & 30 West Broadway, N. Y.

BOSTON.—*Honey*.—We have less than 20 cases of honey on hand of all kinds. Sales very slow. 1-lb. sections sell from 16@18c; 2-lb., 15@16. Extracted, 8@9. *Beeswax*, none on hand.  
BLAKE & RIPLEY,  
June 10. Boston, Mass.

ST. LOUIS.—*Honey*.—Demand fairly active, but prices tending lower on account of increased receipts. Choice bright, 6½; dark, 5@5½. *Beeswax*, prime, 23. D. G. TUTT GROCER CO.,  
June 10. St. Louis, Mo.

DETROIT.—*Honey*.—Very little honey in the market, and very dull sale at 12@14c for comb. *Beeswax*, firm at 24@25. M. H. HUNT,  
June 10. Bell Branch, Mich.

ALBANY.—*Honey*.—Market slow, with no stock and no demand, being between seasons.  
H. R. WRIGHT,  
June 10. Albany, N. Y.

KANSAS CITY.—*Honey*.—We quote white 1-lb. sections, 15@16c; dark, 10@12; extracted, white, in cans, 7@8; bbls., 6@7; dark, 5@6; white, 2-lb. sections, 11@12; dark, 9@10.  
CLEMONS, CLOON & Co.,  
June 10. Kansas City, Mo.

WANTED.—Several hundred pounds of nice extracted honey, white clover and Spanish needle in their season. Who will furnish it? Send sample and price, delivered at Mt. Vernon, Jeff. Co., Ill., freight paid.  
W. W. ADDISON,  
Bumpus, Jeff. Co., Ill.

## Garniolan Queens.

Importing and breeding this race exclusively since 1884; the demand for them has more than doubled each season. Send postal for circular, or \$1 for choice untested queen; \$5 per half-dozen; \$5 for Benton's best grade imported queen. 11tdfb

S. W. MORRISON, Oxford, Chester Co., Pa.

In responding to this advertisement mention GLEANINGS.

## ITALIAN QUEEN

For 80 Cents.

We will send tested queens by return mail for 80 cents. Untested at 65 cents, or \$7.00 a dozen. Money orders, New Iberia, La.

J. W. K. SHAW & CO.,  
Loreauville, Iberia Parish, La.  
12d In responding to this advertisement mention GLEANINGS.

### ALBINO AND ITALIAN QUEENS.

Tested, \$1.00 each; untested, 60 cents; warranted, 75 cts. One pound bees and untested queen for \$1.25. Send for circular.

JOS. MOSEI, Festina, Iowa.

## Bees Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column. THE D. A. JONES CO., BERTON, ONTARIO, CAN.  
In responding to this advertisement mention GLEANINGS.

## I AM AWAITING YOUR ORDER FOR 3-FRAME NUCLEI.

Price, with untested queen, \$3.00. Best tested queen, \$4.00; 2-frame nuclei, 50 cts. less. Combs straight and true; all worker comb, and bees finest of Italians. One untested queen, \$1.00; 6 for \$5.00. Best tested, \$2.50 each.

JNO. A. THORNTON,  
Exp. Office, Ursa, Ill. Lima, Ill.  
12-17db Mention GLEANINGS.

## NOT TOO LATE

### YET TO ORDER SUPPLIES

From me, as I ship very promptly. The class of goods I handle is very fine.

### —TRY ME ONCE—

Catalogue free. JOHN ASPINWALL,  
12-13d Barrytown, Dutchess Co., N. Y.  
In responding to this advertisement mention GLEANINGS.

## DO YOU WANT

One of the finest GOLDEN ITALIAN QUEENS you ever saw? Then send to us and get one reared by our new, natural, and practical method.

Warranted queens, each, \$1.00; Select warranted, each, \$1.25; Tested, \$1.50.

We have had thirty years' experience in rearing queens. 25,000 of our old customers will tell you that the purity, beauty, and quality of our queens can not be excelled.

12tfdb HENRY ALLEY, Wenham, Mass.  
In responding to this advertisement mention GLEANINGS.

## LOOK HERE! Cheap Enough At Last.

Full colonies of pure Italian bees in A. I. Root's Simplicity hive, only \$4.00 each. Now ready to ship. Frames, wired combs drawn from idn., every thing first-class. Write for prices of Poland China swine, White and Brown Leghorn chickens, and Mallard ducks. Eggs for hatching. Also white and black ferrets. Address N. A. KNAPP,  
111tdb ROCHESTER, LORAIN CO., OHIO.

In responding to this advertisement mention GLEANINGS.

STRICTLY FIRST-CLASS SECTIONS, 5¼x6¼x 1¼, at \$3.00 per 1000. Other supplies at bottom prices. E. BAER, Dixon, Lee Co., Ill.





Vol. XVII.

JUNE 15, 1889.

No. 12.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.00; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

*Established in 1873.*

PUBLISHED SEM-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

#### OUT-APIARIES.—NO. IX.

##### WHAT KIND OF A HIVE IS BEST FOR HAULING?

**A** FEW words about hives. Don't be frightened. I haven't invented a new hive. I only want to say a little about some features of hives that make them objectionable when it comes to hauling to out-apiaries. The nearer a hive can come to being a square box, with no projections of any kind, the more compactly a load of them can be put on a wagon. I like outside cleats, for easy handling. I have always been used to them, am prejudiced in their favor in spite of the fact that they add weight and expense to a hive, and I can hardly imagine how it can be so easy to pick up a hive of bees with no cleats, only hand-holes. In spite of all that, if I were starting anew I think I should have hives without cleats on the sides and ends. When it comes to loading them on a wagon, these cleats add nearly two inches to the width of a hive, which makes quite a difference in the number of hives that can be got into a given space. For getting as many hives as possible into a given space, nothing is better than a hive that has no cleat, no projection of any kind. Suppose a frame 17½ inches long is used, then a hive about 20 inches long is needed; and if ten frames are used, about 16 inches in width. Now, with hives 20x16, solidly fastened together, no projections anywhere, they can be packed close together instead of being blocked apart as mine now are; and instead of 11 I could have at least 15 on the same wagon.

Of course, if you winter your bees on their summer stands, you will have comparatively little hauling to do. If you happen to be in that border land where it is a question whether it is best to use chaff hives, and winter on summer stands, or to use single-walled hives and cellar them, then out-

apiaries will turn the scales in favor of the chaff hives, for it will save so much hauling. In that case it might be desirable to have a few single-walled hives, as a matter of convenience, to haul occasional colonies or frames of brood from one apiary to another, transferring them when hauled into chaff hives.

##### PREPARING HIVES FOR HAULING.

If I knew just what kind of hives you have I could perhaps tell you exactly how to prepare them for hauling. As it is, I can give only some general directions. If your hives have fixed frames, at least so far fixed that they can not get out of place, then nothing is to be done with them. Indeed, if you have the ordinary hanging frame, all wood, resting on wood rabbets, then no fastening is needed if the frames are just as the bees left them the previous fall. If you expect to haul such hives without fastening the frames, you must not overhaul them in the spring before hauling, for then you will break loose the bee-glue and bridge-combs by which the bees have fastened them. If you have metal-cornered frames, or if for any reason your frames are loose, then they must be fastened. Perhaps you have spacing-boards, or some special means of fastening them. If you have nothing of the kind, then you might try a plan I have used. Generally I haul without doing anything to the frames, trusting to bee-glue and bridge-combs. Sometimes, however, I fill a hive with combs from a number of other hives, in which case the frames must be fastened in their places. I simply thrust down a stick between the ends of each two frames, and between the outside frames and the side of the hive. These sticks—22 for a 10-frame hive—are from ¾ of an inch to an inch wide, somewhere in the neighborhood of half an inch thick—just thick enough so they will fit in pretty tight—and long

enough so they will rest on the bottom of the hive and project at the top a fourth of an inch or so, just enough so you can get hold of them to pull them out. These sticks you can put in at your convenience the day before you want to haul. Of course, bottom and top must be fastened securely, for there must be no possibility of leaking bees on the journey.

C. C. MILLER.

Marengo, Ill.

Well, I declare, old friend, if you had planned to give the Simplicity hive a boost, without saying a word about it—that is, without using the word “Simplicity”—you could not have done much better than you have in the fore part of your remarks. With the Simplicity hive, however, I planned the metal-cornered frames, and these you don’t fancy a bit, it seems, especially for out-apiaries. Now, look here: If you conclude to use chaff hives for out-apiaries, use the metal-cornered frames in these chaff hives, and all-wood frames in Simplicity or Dovetailed hives that you use only for summer use. We used the sticks for spacing the frames—22 in number—years ago; but we very soon decided that they were altogether too much machinery. Then we made a spacing-board; but the boys have just lately, while buying bees and removing them to the basswood orchard, decided that the spacing-boards were too much trouble, and so they have got up some spacing-strips. Ernest says it is the same thing used by Manum, to be described later. I think our experience agrees almost exactly with yours on all the other points you mention.

#### MANUM IN THE APIARY WITH HIS MEN.

PRACTICAL AND REASONABLE SUGGESTIONS FOR VETERANS AS WELL AS BEGINNERS.

JUNE 25.—“Good-morning, Fred. I have come to spend a few hours with you to-day to help you catch up with your work.”

“Good-morning, father. I am very glad you have come for that purpose, for I have had so many swarms for the past three days that my work is a little behind, especially looking after the boxes. I have a number of colonies to look after to-day—some new ones to look over, to see if the foundation is all right and being drawn out properly; and some that have cast swarms have got to be looked after, to cut out queen-cells or to see if the queens have hatched, or have commenced laying; and, besides, I ought to examine all of my nuclei to-day.”

KEEPING GRASS AWAY FROM THE ENTRANCE.

“Well, sure enough you have got a good day’s work before you. I notice you have mowed your yard; but you have not clipped the grass that grows near the hives. I suppose you intend to do that with the sheep-shears. It looks rather shabby as it is. You know I like to have the yards look tidy, at this season at least. Suppose Mr. Root or any other bee-keeper should visit your yard to-morrow, I fear you would be ashamed of its appearance. I know you have been very busy for a few days, therefore you are excusable; but as soon as you can I wish you would slick up a little.”

“All right, father. I will do it in the morning early, before swarming commences. Here is a col-

ony I wish you would look at. They don’t seem to gain in strength, and I don’t believe the queen is a good one.”

NOT ALLOWING A POOR QUEEN TO REMAIN IN THE APIARY.

“All right; open the hive and find the queen. There she is, just going over the edge of the comb. Ah! I see; she is one of those long, slim, very yellow queens; and, besides, she has one *game* leg, though she is laying pretty well; but her bees are small, frail things; they are not hardy enough for this climate. Show me the record. Ah! she is a daughter of the queen I got of Mr. —. They are beautiful bees to look at, but that is not what I keep bees for; hence I will pinch off her head—there! You may hive a small swarm in here to-morrow, because the colony is too light to store much honey as it is; and by giving it a portion of a swarm with a good queen we shall get something from them. Always remember that a light stock at this season is worthless for storing honey, hence you should manage as best you can to keep every hive running over full of bees, as such only are the ones that give us large quantities of “snowflake honey.”

LAZY BEES—HOW TO MAKE INDUSTRIOUS.

“Father, here is another colony I wish you would look at. I have tried my best to get them into the boxes, but have failed. You see the hive is full of bees, and the front well covered with them; but they won’t work. I have given them sections from other hives partly filled, and I have shaken every bee off the combs in front of the hive to “wake them up” as you have recommended, but still they are idle when all the rest are doing well.”

“Yes, Fred, I understand that colony—or, rather, I think I do. They are like some men that I know of, perfectly contented and happy if they have one meal ahead. They lack energy. I will play them a trick by taking away all their combs and filling the hive with frames of foundation. There, now, we will also give them two clamps of new sections. Now you see they have got to work or starve. The brood we have taken from them we will use wherever we can find a place for it. Now I will go through the yard and look to the sections, as I presume some will need tiering up. Yes, here is one with the foundation all drawn out and capped half way down. The way to do it is to remove the clamps and set them up edgewise on this clamp-stool and remove any brace-combs that may be attached to the bottom. Now place the clamp of empty sections and then place those partly filled on top of them. Be sure that the spaces, or passages, correspond, so that the bees can pass up and down. Here are a few finished sections in this other clamp, which we will remove and put empty ones in their place. You must look to this and remove all finished sections as soon as possible before they become soiled by the bees passing over them. I have brought a bag of fine salt for you to sprinkle on the floor where you are to set the clamps of filled sections. The salt will keep the ants away from the honey. Don’t be sparing with the salt; use enough to make the floor look white. Well, I will now return home and work in the home apiary the rest of the day.”

JULY 1.

“Good-morning, Edward! How goes the battle?”

“Pretty well, Mr. Manum. I am not having many swarms now. I think they are about through swarming, nor are they getting honey as fast as



they did. They gained only 4 lbs. yesterday. Well, that is pretty good on the last run of clover. Sumac will bloom in about five days; and if the weather is favorable they will do pretty well for four or five days, and then comes the basswood; and I hope by that time swarming will be all through with, as I don't want a single bee to lose a moment's time during basswood bloom."

"Have you had any second swarms this season?"

"But one, and that was owing to my neglect. I have followed your instructions as given in GLEANINGS of Apr. 1, and with what you have told me from time to time I have succeeded nicely in preventing after-swarms."

#### "JUMPING" SECTIONS.

"We will go over the yard together, as I wish to show you how I jump sections. I ought to have shown you when I was here the other day, but I did not think of it. Here is one that needs it. You have doubtless observed that the bees are slow to fill and finish the sections at the ends of the clamps. They will often fill and cap the center ones before even drawing out the foundation in the end ones; and in order to have the whole clamp finished up altogether, I 'jump' them by placing the end ones in the center and putting the center ones at the ends, as these center ones are so well advanced they will be finished by the time the empty ones are that we have just put in the center. This work I call 'jumping.' Now, when doing this work you occasionally find a finished section; in that case, remove it entirely and take it to the honey-house and fill its place with sections filled with comb left over from last year, of which we have a plenty reserved for this purpose. How about this record here in this hive? I see it reads, 'June 20, hived from 91.'"

"Yes, sir, this queen is from 91."

"How old is she?"

"One year old."

"How do you know?"

"Well, I remember that is the age recorded in the hive she came from."

"Very well. You remember now; but would you next spring? Or suppose I come here next spring or send some one else, I should have to go to 91 to find the age of this queen. If your records are all like this it will cause us much extra travel another year. You should have made the record thus: 'June 20, hived from 91, queen one year.' Please be very particular with the records. They are very important to me, as I wish to know the age of every queen."

"You are right, Mr. Manum. I now see the importance of having the records properly made out. You had explained this to me before; but I had forgotten. In fact, you tell me so many things that I can't remember them all."

"Yes, there are a great many things to explain about the bee-business, and I never yet had a man who could remember all I told him, and that is just why I am looking around after you. A slight mistake at this season of the year might cost me the use of one or more colonies; therefore be very careful and try to do just as I tell you, then if there are any mistakes it will be my fault and not yours."

JULY 3.

"Fred, how does that colony get along from which we took the combs all away and gave foundation?"

"They are doing nicely, father. I looked into the

hive last night, and they had the foundation all drawn out in the frames and boxes, and filled with honey except where the queen has deposited her eggs. I never saw bees work as they have since you played that trick on them. Where are you going to-day?"

"I am going to visit Will. I have not been to his yard for over a week. I just thought I would drive around this way to inquire after that colony. Sumac is just opening, and you must look well to the boxes; don't let the bees lack for room now."

"How do you do, Will? This is a pretty warm day."

"Yes, sir; it is so warm I was not looking for you to-day."

"Well, I have to start out whenever I get the work done in my yard so I can leave. Do you notice any difference in the working of the bees to-day?"

"Yes, I do. They started out earlier this morning than usual; and I also notice that they are very busy; and yet I do not hear so much of that humming as I did before. What are they working on now?"

"They have commenced on sumac. It commenced to open yesterday, and to-day it is nearly in full bloom. It will last only four or five days, and then comes basswood right after it; therefore you must look well to the boxes and be ready for the rush. If you should have any swarms come out now you may have two or three in one hive, or have a new swarm in where one came out the day before. There is a swarm coming out now. Did you have any swarms yesterday?"

#### PERMITTING SWARMING BUT PREVENTING INCREASE

"Yes, sir; one only. They are nearly done swarming now; there are only six more to swarm; 28 is the one that swarmed yesterday."

"Well, that swarm is clustering on the catcher all right, so that you may come with me and I will show you how to fix 28 to receive the new swarm. You say you hived the swarm from 28 in 130, therefore we will take six combs from 28 and give them to 130 in exchange for six frames of their foundation. Now, the foundation we will put into 28; there, now cut all the queen-cells out of 28. This hive is now ready for the new swarm which you may hive in here at once; and as their two clamps of sections are pretty well advanced, I will give them one more clamp. There, now I think you had better do the same with the next swarm you have out by putting it into 18, where this one came from. This method will prevent increase, and keep every colony strong, as they should be now for the next 15 or 20 days. You may now introduce virgin queens into those twenty colonies from which we removed their queens, to experiment *a la* Elwood. It is 18 days to-day since we took the queen away. Give each colony a virgin queen as soon as they are hatched; don't keep them longer than you can help before introducing, or you may not be as successful. While virgin queens may be introduced two or three days old, there is more risk at that age than when only a few hours old. You may simply let them run in at the entrance, or run them in by way of the sections; and then in about 24 hours look in front of the hive for her. If the bees have rejected her you will find her there dead; if not, she is all right. In ten days you may look to see if she is laying; if so, record her Q. L. with date."

Bristol, Vt.

A. E. MANUM.

You have given us some good points, friend M., and quite seasonable. The first one reminded me that the grass has not yet been cut in our apiary. We are not getting a honey-flow to any extent here at this date, June 11, therefore we are not having experience in the line of the rest of your remarks at the present time. Jumping sections is often managed by having the crate over the frames made in two pieces. When the bees begin to seal up the central sections, the two cases can be swung around so the outer ends come over the center of the brood-nest. This is how you do it, I believe.

### HUBER, AGAIN.

ALSO SOMETHING IN REGARD TO HUISH, WHO SO SEVERELY CRITICISED HUBER.

IN GLEANINGS for May 15, you have given an excellent engraving of Huber, if Naturalist Library, Vol. 7, edited by Sir William Jardine, Edinburgh, 1852, in its frontispiece, gives a correct likeness of this great naturalist. A memoir is also given of Huber. His was a great mind, and I delight to read any notice of him. What a contrast between him and his cotemporary Huish, who undertook to refute by ridicule his discoveries. In the new edition of his work, Robert Huish, F. Z. A., and Honorary Member of the National Institute of France; the Academy of Arts and Sciences of Gottingen; the Agricultural Society of Bavaria, etc., a work of 458 pages, London, 1844, in his preface, says: "If in the course of the ensuing work we may have laid ourselves open to the charge of having applied the lash of ridicule too severely upon this falsely celebrated naturalist, we can only answer, in extenuation of that transgression, that we have been encouraged to the commission of it by the thorough conviction arising from an experience of above forty years, that the majority of the vaunted discoveries of Huber are the result of fiction and delusion founded on obsolete theories and antiquated prejudices."

How hard for him who had and was enjoying the distinction and society of the learned, to acknowledge that what he had so frequently taught in lectures, and published, were errors, even when made so plain and demonstrable as laid down by Huber!

I note some errors which occur in the 24th and 25th chapters of Huish's work; to wit:

Common worker-bees are of the neuter gender; they collect honey and make wax.

Bees deprived of their queen will not work.

Swarms are always accompanied by a young queen, but never by the mother-queen.

Wax is formed by an elaboration of the farina of plants.

The queen lays every egg in the hive, and is, in fact, the only female in it.

The drones are the males, and fecundate the eggs of the queen as they are laid in the cells.

The bees allow but one queen in the hive.

The queen oviposits only in the spring and summer, and never in the winter.

The queen is not fecundated by any act of coition with the drone.

No kind of food is administered to the worms in the cells.

There is no such substance in a hive as propolis.

The bees never make use of their stings in the massacre of the drones.

The queen never makes use of her sting on any occasion whatever.

The hive which has lost its queen can not rear another unless there are royal eggs in the hive.

Bee-bread is not applied to the nutriment of the bees, or as food of the larvae.

The queen-bee has not the power of emitting any sound whatever.

The queen-bee pays no attention whatever to the royal cells.

A hive is not worth keeping after the fifth year.

Bees can not alter the generic character of the eggs under any circumstances whatever.

Bees work their combs always parallel with the entrance.

He devotes 40 pages descriptive of the different hives, specifying their advantages and defects, and gives two illustrations of the Huber hive. When he comes to speak of the "mirror, or experimental hive," he says: "It is to this hive we are indebted for many of the discoveries of Huber and Dunbar, especially of the latter naturalist; for in regard to the former, it appeared to be to him a matter of perfect indifference in what hive his experiments were carried on, for the results were always in perfect unison with his anticipations."

Murfreesboro, Tenn.

W. P. HENDERSON.

It seems sad to think that Huish should have been so unwise as to ever put in print his unkind criticisms. What a record for future generations! and yet while I read over the mistakes made by Huish, I feel to pity him more than to blame him; for in almost every one of the quotations there is a grain of truth; and we, with all of our later experience, can readily understand how he came to fall into most of his errors. In fact, a great many even now would indorse many of the statements. Yes, if we look back over our own bee-journals we shall find some pretty good men who have taken almost every position held by Huish. Let us be slow to criticise, and never think of taking the "lash" into our hands, unless the good of humanity demands that the deliberate thief and swindler be held up to public view, or something of that sort.

### POLLEN AND HONEY FROM THE WILLOWS.

#### POLLEN-PRODUCERS.

A CORRESPONDENT asks: "Is there any other name for bee willow, or how can I tell it from other willow?" In reply I would say, that, so far as I know, all willow is "bee willow," for all of them with which I am acquainted yield either pollen or honey, yet some of them are more eagerly sought after by the bees than are others. Among the pollen-bearers we have several kinds of what is known here as "pusy willow" (*Salix*), which put out their blossoms quite irregularly. Some are a month earlier than others, and some of the buds on the same bush are ten days later than others. The kinds which seem to attract the bees most are the black willow, upon which the kilmarnock is budded, and those which produce a long cone-like flower similar to the black willow, the accompanying cut giving a fair representation of the latter, a week or so after it is through blossoming and has partially gone to seed.



From these two kinds the bees obtain large quantities of pollen, but, so far as I can ascertain, no honey. As this pollen comes the first of any which we have which amounts to anything, I esteem it of great value to the bees. Skunk-cabbage gives pollen a little earlier, but we do not have enough of it to amount to much, compared with what these willows give. The flowers are of a rich orange color, and consist of a center out of which spring hundreds of little thread-like filaments, upon which the pollen is supported. It is very interesting to see the bees work on these flowers, as you can see their motions so plainly, for the tree or bush does not grow so high but that some of the lower limbs are about on a level with the eye. Here is a peculiarity of the willows, for all those in this section which give pollen grow in a bush form, while all of those which yield honey grow to be quite large trees, often reaching six feet in circumference.



PUSSY WILLOW.

The pussy willow naturally grows on low swampy ground; but with a little culture to start, it will grow readily on dry ground. They grow readily from cuttings put in the ground in early spring, as does all of the willow tribe. The above are often set down as "honey-plants;" but according to Quinby and my own observation, they produce no honey. As they grow very plentifully about here, I have had much observation regarding them. To be sure, the bee is continually poking its proboscis into the blossoms, the same as they do when sucking for honey; but after killing many bees and dissecting them, I have been unable to find the least bit of honey in their sacs. This way, if used when the bees are at work on any of the honey-bearing flowers, never fails to reveal honey accumulating in their sacs.

#### HONEY-PRODUCERS.

Of these we have three kinds—the golden willow, the white willow, and the weeping willow, and they are of value as honey-producers in the order named, although the weeping willow blossoms about three days earlier than the others. This would make it of more value to the bees, even did it not yield honey quite so profusely, if there were enough trees to keep the bees busy; but as there are very few trees of this kind about here there is not enough to make any account of. None of the three willows mentioned here give any pollen that I ever could discover, for none of the bees at work

on these trees ever have any pollen in their pollen-baskets. If there is any species of willow which yields both honey and pollen, I am not acquainted with it. The flowers are similar to those which grow on the birch and poplar, being of a long tag-like shape, as large as a slate pencil, and from one to two inches long. Those on the golden willow are the longest, and yield honey abundantly.



GOLDEN WILLOW.

The engraving presented herewith so nearly represents the golden willow that any one should know it in connection with its yellow bark, which distinguishes it from the other kinds of honey-yielding willow, as all of the rest, so far as I know, have a light-green bark. When these willows are in bloom, and the weather is warm, the bees rush out of their hives at early dawn, and work on it all day long as eagerly as they do on clover or basswood. The blossoms often secrete honey so profusely that it can be seen glistening in the morning sun, by holding the blossom between you and that orb, while the trees resound with that dull busy hum, so often heard when the bees are getting honey, from morning till night. As this is the very first honey of the season, I consider it of the greatest of value to the bees, for the brood is now crowded forward with great "vim," which brood gives us the bees which work on the white clover, while the honey often helps very greatly in piecing out the depleted stores of the hive. These willows blossom a little in advance of the hard maple, and hold out as long as they do; and from the fact that, when I kill a bee at work on these willows I always find honey in its sac, while when I do the same with a bee which is at work on the maple I never find any honey, I have been led to think that perhaps those reporting honey from maple might be mistaken, and that the honey really came from the willows. Again, maple blossoms only every other year with us, while the willows never fail; and I have noticed for years that I got fully as much honey in the years when the maples did not bloom as I did the years when they did. From the few trees along a small creek near here, my bees frequently make a gain of from six to ten pounds of honey while the willows are in bloom, and one season they made a gain of 15 pounds. This present spring some of my best colonies gained 8 pounds, while on apple-bloom they did not get more than a living, with apple-orchards white with bloom all about. The honey

from the willow is quite similar to that from the apple-bloom, and of a nice aromatic flavor. As the willows give the first pollen, and also the first honey each season, it will be seen what a great help they are to all who have them in profusion near their bees. The only drawback there is, is in the weather often being unfavorable, for I do not think that more than one year in three gives good weather all through the time the willows are in blossom. So far as I know, honey and pollen are always present in the respective kinds when they are in bloom; but the trouble is, that it is so cold, rainy, cloudy, or windy for the bees to get to the trees so much of the time, at this season of the year, that honey or pollen from this source is not at all certain.

G. M. DOOLITTLE.

Borodino, N. Y., May 30, 1889.

Notwithstanding your strong points in favor of the willow, it hardly seems to me that it would pay to plant it for honey alone. If it could be made to serve the purpose of a hedge, or to restrain the banks of a creek or river, or something of that sort, then we might afford to do it. In our locality miles of willow were sold years ago, as a hedge-plant. I have never been able to see, however, that they bore very much honey or pollen either, unless it was during special times for a few days. Perhaps you can tell us which class of willow it belongs to. On the banks of the Mississippi River, in the vicinity of New Orleans, I believe they often get considerable yields of willow honey. Perrine, you may remember, made mention of it. The quality is hardly first class. It has a taste considerably like much of the Southern honey.

### BEE-STINGS AND RHEUMATISM.

SOME POSITIVE AND CONVINCING TESTIMONY AS TO THE VALUE OF THE BEE-POISON.

**I**N the May 15th issue of GLEANINGS, F. Brown gives his experience with rheumatism and bee-stings, and here is mine.

About fifteen years ago I sprained one of my knees. I was lame for a few days, and it got better; but the lameness, accompanied with an ache, came again; and as time passed on it continued to come worse and worse until it got so bad I could neither straighten my leg nor bend it up; and if by accident I did move it from just such a shape it was like biting on the nerve of a decayed tooth. The pain not only stayed at my knee, but extended above and below, and acted as if it had come to stay. I tried a magnetic battery some. I used liniment externally, and "sure cure" internally, with but little relief and no cure. Three years ago we bought five colonies of bees, and with them came the stings, and next the relief. I have not suffered as much from my knee in the whole three years, as I have in some three minutes previous to the stings. I have used no other remedy within this time. I am a farmer, and my work has been very much the same.

Now, I am not going to say that bee-stings have cured my rheumatism; but if I had employed a doctor, with the understanding of no pay unless successful, I am very sure he would call for his pay.

W. M. STACY.

Edgar, Clay Co., Neb., May 30, 1889.

You have given us a very important fact indeed, and one that seems to be pretty conclusive. However, as rheumatism often "lets up" of itself, in about the way you have described, *may be* the bees have nothing to do with it. You did not tell us how it was in winter time. I suppose there are several months when you do not get stung at all, unless, indeed, you get bees and get stung purposely during the winter.

### CLOVER BLOAT.

CAUSE AND CURE.

**M**R. W. W. BOWLBY desires me to explain the cause of clover bloat. He states that thirty milch cows in his neighborhood—Southern Illinois—have recently died of this malady.

The fields, he says, are carpeted with white clover, and the season has been very dry.

This trouble is known as "bloating," *Tympanitis*, and hoven. It is really gaseous indigestion of the first stomach, or paunch. It is attended with great swelling of the paunch, or rumen, from the excessive formation of gas. The name *Tympanitis* comes from the fact that the belly swells out, so that it becomes as tight as a drum-head. This disease is most likely to appear in weak and poorly fed cattle when they are first turned out to clover. They stuff themselves with the succulent herbage, and, not having strength to digest it, gases are formed, and the bloating appears. The flanks swell up, the left always; the right, in severe cases, till the sides rise even above the back. The animal moans, breathes hard, reaches out its neck, distends its nostrils, grinds its teeth, often bellows and stamps, and at last staggers and dies in a convulsive fit. A greenish foam or liquid oozes from its mouth and nostrils. If the case is not very severe, aromatic spirits of ammonia—the same that is found so effective to cure sick-headache—may be given. The dose is one ounce in a quart of water every half-hour, till the swelling disappears. Sometimes two or three doses will bring relief. In very severe cases, the paunch should be pierced. This is best done by the use of a trochar and canula. The place to puncture is midway between rib and hip-bone, about three inches from the lateral process of the back-bone. When necessary, the tube or canula may be tied in and left for hours. This permits the gas to escape, and so may save the life of the animal. Animals have been saved by cutting into the paunch with a simple knife-blade. If the cattle are fat, sleek, and well fed, as all cattle should always be, there will be less danger of bloating. Again, animals should not be permitted to eat too much of green feed at once. By commencing on slight rations, and increasing gradually, the trouble will generally be avoided. If cattle are turned first on pasture where there is but little clover, and later where there is much, and only for a few minutes for the first few days, increasing the time a little each day, there will probably be no serious trouble. The clover when wet is still more harmful.

Agricultural College, Mich.

A. J. COOK.

Friend C., in the above you give us some real, practical common sense in the way of veterinary surgery. I shall become a strong convert to doctors and medicine if you give us some more such examples. I wanted you to tell us, however, what gas it is that



distends the poor animals, and how it is that ammonia neutralizes the gas and diminishes the pressure. My father used to give his horses saleratus water, when they suffered from colic; and though I was a small boy, my knowledge of chemistry suggested that the saleratus water might absorb the gas so as to relieve the pressure and set the animal at ease in a few minutes, which indeed it did. Now, this matter of giving relief by a surgical operation has reason to commend it, especially if the animal quickly recovers from the wound made through its side.

### HONEY-DISPLAYS.

VARIETY IN ARRANGEMENT, ETC.

HERE has been a good deal in the bee-papers of late, respecting the best method of arranging for and setting up honey-shows. If these be made large and attractive, they serve a good purpose in promoting the interests of bee-keepers by attracting attention and promoting sales. To do the work well is no easy matter. This arises mainly from the absence of variety in the article shown. Extracted honey is extracted honey in whatever form it may be shown. Monotony can be broken only by variety in the design of the packages in which it is put up, which is in itself limited. The same may be said, but in a still more marked degree, of comb honey. I suppose the main object the writers have in view in these articles is to aid bee-keepers in making good displays at local fairs. It is noticeable, that those who have treated the subject describe the methods followed by themselves or those they have seen adopted by others, which have met their approval. At honey-shows the competitive prizes are usually confined to the *quality* of the article shown, and it is upon this that judges usually base their awards. This is right as far as it goes, but the prime object of honey-shows is to attract attention and advertise the goods. As ninety per cent of the visitors at fairs can not tell, by cursory inspection, between what is good and what is poor in quality, it follows that attention should be given to appearance. To this end a departure from the usual rule can not be made too soon. Prizes should not be confined to quality. Good taste and neat arrangement should come in, be recognized, and rewarded. This may be done without injustice to any one. A man with 200 pounds of honey may make as neat, tasty, and symmetrical a display on three feet space as one with 4000 pounds can make on 20 feet of space.

Any hard and fast rules laid down for the form of staging upon which exhibits are to be set up are entirely useless. It is manifest, that, to do justice to all, no competitor should have advantages over his fellows in a more advantageous arrangement of the framework upon which the show is to be made. It follows, then, that, whatever the design, the staging should be uniform throughout. The taste and ingenuity of the respective exhibitors will then be brought into play in the superstructure he raises to show his wares.

Most of the designs I have seen for staging are after the step-ladder style. To my thinking, this is the worst form in which staging can be built for honey-shows. It gives little or no opportunity for the exercise of judgment or the display of ingenuity in the make-up of an exhibit. If "variety

is the spice of life," it should have a place in all honey-shows. Little of it can be thrown in if this style of framework is employed. What, then, is the best form for the permanent fixtures in a building where honey is to be displayed? Where a number of people are to compete, the simplest is the best—at least this is my opinion, and the simplest is common tables. These should not be less than six feet wide. Space upon these should be allotted, in proportion to the quantity each has to show. Then each will be called upon to build up his own superstructure and decorate it. It is easy to understand, that by this arrangement variety will be secured; for every man will have his own notion of what is most suitable. These superstructures will take different forms in proportion to the amount of honey and the character of the packages to be placed upon them. I hold that no man can have a correct notion of what is the best form in which his exhibit should be arranged, without a full knowledge of what is available to make it with. How can a man suggest a design for his neighbor's show, without a knowledge of what his neighbor has to show?

Owen Sound, Ont.

R. MCKNIGHT.

Very good, friend M. I agree with you, that bee-keepers do not need to follow stereotyped ways; but many times some general suggestions are quite helpful.

### REARING CELLS IN STRONG COLONIES CONTAINING A LAYING QUEEN.

AN IMPROVEMENT ON DOOLITTLE'S PLAN.

AFTER reading carefully Mr. Doolittle's articles on queen-rearing, in which he styles it "nature's way," or cells obtained under the swarming impulse; and having read a good deal lately about rearing queens in the upper story, leads me to write out my plan, which may prove a benefit to some one.

I have a Langstroth frame, with two strips of wood running parallel with top and bottom bar. I then obtain eggs from my best queen. These eggs should not be over three days old. I cut these in very narrow strips; after dipping one side in wax I stick them fast to the bars already mentioned. The frame should be bottom upward while fastening on strips. I then take these frames with eggs for rearing queens to a strong queenless colony that has been deprived of all brood and eggs, and hang the frame in the hive for one night or one day, or until they form a great many embryo cells, or eups. A good colony will sometimes start 40 to 60 eups; and if the eggs are of proper age, the eups will be formed around the eggs just hatching. I then transfer these frames, that have the cells started, to the upper story of a good strong two-story hive, with a queen-excluding board between. Every cell that was started will be worked out, and each cell approaches nearer to a natural-swarm cell than any thing I have ever seen. I have had in the last few days, by the above process, the largest and finest queens hatched I ever raised.

As soon as the frame with cells started is transferred to the upper story, I supply the same queenless hive with other eggs, and so on. The only danger is, that sometimes a queen will get into the upper story through the zinc. I think this plan is much easier than the one Mr. Doolittle gives, or at

least it is to me; for transferring larvæ or eggs to artificial or old queen-cells, starters just cut from the hives are a very tedious job. I let the bees do all the starting of cells; and when I go to manipulating them the egg or larva is in its proper place. I would advise looking after the cells often-er than under other circumstances; and as soon as they are capped they might be transferred, and other cells just started given to them. They will work out and cap several batches. I find they are willing to work out all that a queenless hive will start for them; and all that I have had worked out by this process are large and fine; fully as much difference as cells raised under the swarming impulse, as if the frame of eggs fixed as above should remain in queenless colony, where they were started and completed. I suppose most queen-breeders will understand all about how to fix strips of comb on an inverted frame. There is nothing new in this plan, that I know of, except letting the bees merely start queen-cells and then transferring the frame to a strong upper story. Any of my bees in an upper story will work them out. I think friend Doolittle deserves credit for this process, as it was suggested to me from his plan. J. D. FOSBIE.

Coronaca, S. C., May 27, 1889.

You have given us not only an important fact, but one that, so far as I know, is entirely new. If any such thing has appeared in our bee-journals I must have missed it. Had the question been asked me, "What will become of queen-cells just started in a queenless colony, if they are moved to the upper story of some colony having a queen?" I should have said at once, "The cells will either be torn down or allowed to remain where they are without any further care," and I can't help feeling a little doubt about its working every time with every colony of bees. You say any of the bees in the upper story will finish them out. Now, did you not test it while the bees had the swarming fever? If so, I can readily accept it; but at any other season, it seems to me very strange, if it proves to be true. No doubt, however, it may be in any case quite valuable during the swarming season.

#### CURRENT SAW-FLY.

HELLEBORE AND THE CURRENT-WORM.

**M**R. GEORGE THOMPSON, Geneva, Ill., sends me the larva of the currant, or gooseberry saw-fly—the currant-slug. "Would it be asking too much," he writes, "that you give its habits and the remedies in GLEANINGS, that we may be fortified another spring?"

These yellow and black flies, about the size of the common house-fly, which they somewhat resemble in a general way, though these have four wings, come forth very soon after the leaves open in spring. They pair, and the female lays her small white eggs along the veins of the leaves, on the under side. The name saw-fly comes from the fact that this insect has a curious saw-like attachment to its ovipositor. Thus it saws a slight groove to receive its eggs. This saw, consisting often of a double blade, is of exquisite finish. We often boast, and with no slight reason, of the advancement in mechanical inventions of this century; yet when we study the matter closely we are not wholly

pleased. Thus if we magnify highly a knife or needle of finest finish we discover that it is rough and nicked, and looks like a sorry piece of work. Not so these insect-saws. They are elegant in finish and polish, and lose none of their perfection, no matter how greatly magnified. Nature shows us that we have room for great improvement, even in our best accomplishments.

The currant-slug, as it comes forth from the egg, is light green. Soon it sheds its skin, and becomes darker green, dotted with rows of black dots. With each molt, or shedding of skin, it increases in size, and after the last is again light green. It is astonishing how some of these larvæ eat. Sometimes we think, when we have mush and milk, or buckwheat cakes and maple syrup, that we have no inconsiderable gastronomic capabilities; yet when compared with these insects in their growing period we fairly sink into nothingness. When the slugs first commence to eat, small holes will be seen in the lower leaves of the bushes. Later, when they near maturity, the leaves seem fairly to melt away. The minute holes, the eaten leaves, and the devastated bushes, as well as the feces of the larvæ, tell where these devourers are at work.

When fully developed, the larvæ, now nearly an inch long, pass to the ground; and just at or beneath the surface they spin gray or dark cocoons in which they pupate. In a few days the flies come forth again, and we have the second round of mischief. These insects have few enemies, and increase so fast that, unless we fight them, we must give up our currants, and the delicious jelly and *par excellence* jelly-cake. When once a currant orchard is attacked, it soon vanishes away unless we see that the slugs are put to rout.

The best remedy for this scourge is white hellebore. I have used this now for years, and always with the most evident success. Though this is a vegetable poison, it is not dangerous. I have known of its use for years, and yet I never heard of any harm coming from it.

To apply this remedy, use one ounce of hellebore to two or three gallons of water. Stir well and spray the plants by use of a good force pump, like the Whitman, or a good syringe like the Lewis. It is best to throw with force so as to scatter the poison on all the leaves. So, Bro. Thompson, just get and use some of this hellebore, and still rejoice in your jelly and jelly-cake. A. J. COOK.

Agricultural College, Mich.

If we had insecticides that would work as surely and as easily in killing other insects as hellebore does for the currant-worm, I should feel quite happy. I have, however, never taken the trouble to make it in solution. All that we do is to get five or ten cents' worth of hellebore. Just take the paper right out into the field, make a little hole so the dust will sift out, then thump the package, or snap it, so as to raise a little cloud of dust. Let this dust drop or float on the worms or foliage, and that is the end of them. We always, however, keep a close watch; and just as soon as the smallest colony of currant-worms gets a going, they are dusted with hellebore. It works so effectually and surely that I rather enjoy seeing these worms make their appearance, that I may teach them that A. I. Root is "boss of this 'ere currant-ranch."



## HOW OLD MAY A QUEEN BE, AND STILL BECOME FERTILIZED?

WISE AND OTHERWISE, FROM E. FRANCE.

**I**N reading my new A B C book I came across this subject on page 218. The author says, 25 days is the longest period he has ever known to elapse between the birth of a queen and the laying of worker eggs. I have always held an independent position on this matter, but have never taken the pains to prove it. Place a virgin queen, with a good colony of bees, clear away from the reach of any drones. A swarm of bees traveling over the country could perhaps easily settle down to work in just such a locality. Now, if there were no drones with them, how is this queen ever again to be fertilized? Has nature left this swarm to dwindle, and perish from off the earth, or has there been a provision made for their salvation? We all know that a virgin queen will lay eggs that will hatch good-looking drones. Those eggs will hatch in about 28 days. Now, is it not possible and even probable that the queen in this case would be fertilized by drones of her own, and then produce worker bees, and save the colony? why not? Why did nature provide that a virgin queen should produce drones unless she had some use for them? Perhaps you will say that a swarm of bees always have drones with them. Not always. I have known swarms to come off without a drone. I know it is not common for a swarm to come off without drones, but it does sometimes happen.

### MOVING BEES.

In the middle of the day, when the bees are at work, is there any way to collect the bees that are out at work, and at the same time keep the bees that are in the hive from going out so we can move all, or very nearly all, the bees that belong to the hive? Yes. I will tell how I have managed several times. Perhaps you all know. All you have to do is to blow smoke enough into the hive to be moved to keep the bees that are there from going out, and wait for the field bees to come in. When they are all in, shut them in and move them. I think almost any kind of smoke will do. But I have always used tobacco smoke. The bees in the hive will need smoking a little as often as you see any bees starting out—about once in five minutes.

Almost any one will be surprised at the short time it takes for them to all get in. Of course, it depends upon what the bees are at work on at the time. When honey is coming in fast, half an hour is a long time for a bee to be gone. At other times, perhaps some would be out a whole hour; but not often. Don't smoke them too hard. It takes but a little smoke to keep the bees at home. They don't like to leave home when their home is meddled with in any way. I have bought bees five to ten miles from home, and moved them in May. When the bees are at work nicely, I smoke them three or four times and wait about half an hour, and then shut them in the hive and take them in my wagon and go home with them.

### COLONIES LIVING AND PROSPERING IN THE OPEN AIR.

We keep our queens' wings clipped to prevent swarms from going off. When we quit extracting, near the close of the basswood season, our bees are usually very strong, and sometimes swarms issue. The queen's wing is clipped, and she can not go. Our hives stand on five stakes, leaving a space of

from 6 to 10 inches under the hive. When the swarm returns to find the queen they sometimes find her under the hive. The bees cluster under the hive with her, and soon go to work there in the open air, with no protection except the hive over them. As we have done extracting, and have no work to do in the yard, it often happens that it is six or eight weeks before we see them; and if there happens to be a fair run of fall honey, those swarms will have from a peck to half a bushel of comb built. They sometimes have from 10 to 25 lbs. of honey, and are breeding the same as bees in the hive. I once had a case of that kind that stayed under the hive until Christmas, and were then in good order. The snow was 6 inches deep, and the thermometer had been down to zero two or three times. As they had honey enough to winter them, I have always been sorry that I did not leave them until spring. I believe they would have come through all right. There was no stock running in the yard, and the blue glass had grown up thick around the hive, so they had some protection. The grass hid them from sight, so that was the reason they were not seen before.

Last season we found one swarm under a hive when we were preparing our bees for winter. This was in November. They had about half a bushel of comb, and about 10 lbs. of honey. There was no grass to hide them. We could see the combs ten rods away; and the strangest thing about it was, they had not been robbed of their honey. As the hive directly over them had been full of honey, and had been cleaned out by the bees, there was nothing in it but empty combs. No doubt the swarm under the hive came from the one above; and the upper one failed to mature a queen, and dwindled away and was cleaned out by the bees in consequence. It doesn't look as if it were possible for those bees to so protect their combs of honey from robbers, with no protection around them; but such are the facts in the case. We have from none to three or four every year of swarms under the hives in this way, and seldom are they disturbed by the other bees.

### A QUESTION.

How is it that bees can build combs out in the open air when there is so much talk about confining the heat in hives and supers to get combs built? Why is it so necessary to contract the entrance of hives to secure the bees from robbers?

Platteville, Wis.

E. FRANCE.

I have thought of the same thing you mention, and I used to wonder, as you suggest, if it were not a safe provision to save the life of such a colony. As in all my experience, however, I never had a queen become fertilized at the age she would be when her own drones were able to fly, I gave it up. It may be, however, that under some circumstances it might be possible. Of course, there would be the objection of breeding from a near relative; but nature may have decided such a course to be better than utter extinction. Can anybody else tell us more about it? We have for some years adopted the plan of smoking the bees all into the hives when moving them in our neighborhood. I have seen colonies live for some time under the hive, just as you describe; and I have no doubt but that they would winter all right. In fact, the idea was advanced, many years ago, that if

hives were made with no bottoms except the ground, they would never be troubled with the moth miller. Now, it was to prevent this very catastrophe that I decided to have the bottom of the Simplicity hive the same as the cover. When banked up with sand and sawdust, as I have described in the A B C, it not only absolutely prevents the queen or bees from crawling under the hive when you are extracting, but it prevents toads, spiders, and snakes, and all such enemies, from getting under. Our first stands for bee-hives were made of a wide board with a piece of scantling under the back and front; but when we used these stands, during extracting time I used to go around every night and poke out the bees that had crawled under the hives and there clustered. If I wanted hives as high as you have them, I would set each one on a box, or, perhaps, something like an empty hive without top or bottom. I think bees can build comb to advantage in the open air, only when the weather is mild and the cluster of bees large. With our old hoop hive we demonstrated pretty well the effect of thin well-ventilated hives. Although the bees will get along in them, we think it is not profitable.

#### REPORT FROM FLORIDA.

25 LBS. PER COLONY FROM ORANGE-BLOSSOMS.

**M**R. ROOT:—I see by May 1st GLEANINGS that you are somewhat surprised at the yield of honey from the orange-blossoms in Florida, as stated by J. B. LaMontagne, pages 355, 356. It is as friend LaMontagne says.

You would be surprised to see how many bees are at work on some of the large trees at one time; and the honey, as he says, is very white and of a fine flavor. I for one do not wish for any nicer. My bees this year have gathered on an average 25 lbs. per colony from this source alone. The best colony gave 48 lbs., all in  $4\frac{1}{4} \times 4\frac{1}{4}$  sections. The above honey was all gathered inside of two weeks. Bees did not work on it the first three weeks, on account of unfavorable weather. You ask if it is only in a favorable season that they work this way. I think not, as my average last year was 35 lbs. per colony from this source. I have only a few bees, 16 colonies, at present, which may account for such a fair average from this one source. My total average this year up to date is 42 lbs. per colony (spring count), with gallberry and saw-palmeto to hear from yet, both of which are just opening; bees will be at work on them in a week or ten days. We generally get a good surplus from both of these sources.

The large green dragon-flies have been very troublesome about the apiary the past three weeks. They come by the hundreds, and destroy a great many bees. They are so bad at some times that the bees stop work altogether while they are around. I have seen them dart right down to the entrance of the hives and get a bee, when there would be a pint or a quart lying out on the front of the hive. I call this pretty bold.

A. F. BROWN.

Huntington, Fla., May 15, 1889.

We are very glad to get so good a report from the orange. I think if I were you I would try to trap or poison those dragon-

flies. It may be difficult to poison them without poisoning the bees, but I think it can be managed. I suppose your locality is near large bodies of water.

#### MOVING BEES TO ANOTHER LOCATION IN THE SAME NEIGHBORHOOD.

HOW TO DO IT, AND HAVE THE BEES STICK TO THEIR HIVE.

**E**DITOR GLEANINGS:—On page 347 friend Miller has an article on moving bees; but it seems to me that both he in his article and you in your foot-notes have overlooked one of the most important factors in the problem of how to move bees to a different location with the least loss of returning bees. I refer to the fact, that the more thoroughly bees, while being moved, are shaken up, roughly used, confused, or "obfuscated," as the darkey calls it, the more inclined they will be to mark their new location. The more thoroughly they can be impressed with the knowledge that something terrible is happening with their home, the more thoroughly will they examine the question of a new home when allowed to fly. Bees that have been carried two miles in a buggy or wagon, have of course been jolted more than if carried only one mile, and more of them will mark their new location. This whole thing can be tested by removing some colonies during the honey season half a mile or a mile from home, then carrying others several miles away and returning them to the same locations the first ones were taken to, without having allowed them to fly; then observe whether those that have been jolted the most and furthest will mark their new location the best or not. All such experiments should be made during a honey-flow, as bees are much more apt to pitch headlong out of their hives at such a time than at other times. If I am correct in these views, then it follows that your and friend Miller's deduction (that the fact that bees that have been moved two miles rarely go back, shows that bees rarely fly so far when foraging) is not so fully proven as you seem to think it is. My own observations have caused me to have quite a decided opinion that bees, especially Italians, frequently range freely at least four or five miles away from their home.

There is another practical application to this idea when making nuclei. Instead of carefully lifting the combs with adhering bees into the nucleus hive, I practice shaking the bees off the combs into the new hive, while placing the combs in the hive, closing hive up quickly before many take wing, and find that nuclei thus made retain many more of their bees than if the operation of shaking bees off the combs were omitted. Your apiarist is probably making many nuclei this season, and you can easily have him thoroughly test the value of this method, and report.

O. O. POPPLETON.

Havana, Cuba, May 21, 1889.

Your suggestion is a good one, friend P.; and I confess it never occurred to me before, that the further they are moved, the more likely they would be to take their points before sallying out. We have already tried pretty thoroughly this matter of shaking bees up and pounding on the hive to make them fill themselves with honey, and in order to make them hold to their



location after their hive was moved. But with some colonies, especially full-blooded Italians, it did not seem to make very much difference. They would go back to their old home, and cluster on a bush, even after they had been carried back to their hive repeatedly. We have always taken combs, bees and all, quietly from the hive, when we wanted them to form nuclei. If unsealed brood is carried with them, a great part of them will be pretty sure to stay; in fact, almost every bee will go home unless unsealed brood, or, better still, a queen, is carried with them. By taking the old queen from the hive, and leaving her a couple of days, most of the bees will usually stay with her. Friend Doolittle described this plan a little time ago.

### WHITE ANTS.

ALSO SOMETHING ABOUT INSECTS RESEMBLING IN THEIR HABITS WHITE ANTS.

A FEW days ago I received a letter from J. F. B. Columbus, Ohio, in which he stated that some black insects, looking like ants, annoyed him seriously each spring. They came from the floor of his office, which was laid on sleepers between which he had packed coal ashes before the floor was laid. The insects would fly to the windows, upon which he had killed scores of them. Some of them were sent, and proved to be males and females of *Termes flavipes*, or white ants, which are among the most interesting insects we have in our country.

I have just received the following from Henry Wilson, Clinton, Ill.:

I send you some white insects, which are very common here, and very destructive to almost all kinds of wood. I have known them to attack the sills under buildings, and to destroy fence-posts—indeed, any wood that is connected with the ground. I send two kinds. I suppose the one with wings is a sort of queen. Please tell us through GLEANINGS what these are, and what can be done to destroy them.

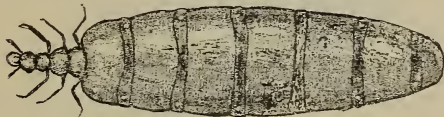


FIG. 1.—FEMALE WHITE ANT.

Though these are called white ants, they are not ants at all; though in their general appearance, and in their life habits, they remind us not a little of true ants. These insects are lace-wings, and so are related to ant-lions, dragon-flies, etc. White ants are very common, and terribly destructive in the tropics. The one here figured (Fig. 1) is from India. This great vital egg-sack is utterly powerless to care for herself. She is said to lay 100,000 eggs daily. The drawing is natural size. The worker-ants not only feed her digested food, but carry off the eggs, and I suppose occasionally turn her over and scratch her back. These tropical ants raise great mounds, and are said to entirely devour wooden houses and furniture, except a thin outside shell. Thus a person sits down to a table or on a chair, which looks all right, but which, like the "deacon's one-hoss shay," sinks to nothingness when touched. Humboldt said that a library was impossible in many tropical countries because of

these terrible miners. In other words, these ants love books—they are "book-worms." In all white ants the differentiation of individuals is far greater than among bees. Thus there are both male and female workers. The workers are simply abortive, or partially developed males or females, as the case may be. Then there are big-headed forms—the soldiers. Like the workers, the soldiers are also both male and female, and also undeveloped. Fig. 2 shows a soldier of *T. flavipes*, magnified four times.



FIG. 2.—A SOLDIER WHITE ANT.

The males and females of *T. flavipes* are black or very dark colored. They possess wings, are one-fifth of an inch long, and expand more than half an inch. They come forth from their tunnels in spring, often in swarms, settle to the earth, when the males seize the females. Some think, however, that mating does not occur till later in the season. After their flight they shed their wings.

This American white ant—the workers are small and white—also likes books at times. It has seriously injured public documents in the State Library at Springfield, Ill. It has shown the same habit, I believe, at Harvard College, where it is the fashion to go through books.

A few years ago the manufactory of Alvin Clark, the celebrated telescope-maker, at Cambridge, Mass., was attacked by this same white ant, and the first story had to be replaced to prevent a grand crash. Some years since, I received some of these same termites from a greenhouse man in Grand Rapids, Mich. The greenhouse was an old rotten wooden structure, and the ants not only attacked the building but also the roots of the potted plants.

The remedies are not hard to find. Kerosene oil, gasoline, bisulphide of carbon, and boiling hot water, will each and all put a quick end to the existence of these pests, if turned upon them. Circumstances will guide us as to the best specific. In case gasoline or bisulphide of carbon is used, great care must be exercised to keep all fire away till the vapors are all gone, or there will be a grand explosion. In case the ants are beneath the floor, as at Columbus, the floor might be taken up, the sills and all beneath saturated with kerosene oil, and the floor relaid. This would surely destroy the ants, and I do not think the oil would be disagreeable, with a well-laid matched floor above. Each person must decide as to which is the most desirable remedy in his special case.

In case of the greenhouse, I recommended pouring hot water on to the earth about the roots of the plants, and the painting of the woodwork with kerosene oil. The advice was followed, and the enemy at once disappeared.

A. J. Cook.

Agricultural College, Mich.

I am greatly surprised to learn that we have insects in Ohio that destroy furniture in the way you describe. I have read of them in the tropics; but I supposed we were never to be troubled in that way. Saturating the woodwork with kerosene would add sufficiently to its durability, probably, to pay for all the cost of the application.

## A NON-SWARMING RACE OF BEES.

WOULD THEY BE HONEY-GATHERERS AS WELL AS NON-SWARMERS?

IS it possible, from a practical standpoint, to produce a strain of non-swarming bees? If so, will they not be indifferent honey-gatherers, and lack the vitality necessary to be the bees wanted by the practical apiarist? "Why do bees swarm?" has been fully answered, and we infer that one prime cause is an overabundance of bees with a prolific queen, both in connection with a bountiful honey-flow. Very likely by producing queens for several generations from stock of limited laying qualities, we may be able to produce a strain of bees that will not swarm, and for very obvious reasons. We have queens in our own apiary that are four years old, and yet they have not swarmed, even under what might be called favorable circumstances. These bees always winter well, and breed up early enough in the spring; but when the honey harvest comes we find they are non-honey gatherers as well as non-swarmers; this leads us to almost conclude that non-swarming queens are of but little use to any one; the only reason we can give for this non-swarming is that they lack the necessary ambition. The queens we like are those that keep their hive overrunning with bees, and when honey comes in they will want to swarm, non-swarming or not. There is certainly no queen worthy of being kept in a colony if she is not prolific enough to keep the hive overflowing with bees under favorable circumstances, and if such is the case then non-swarming is more the result of poor layers than a predisposition not to swarm. We don't say there is no such thing as non-swarming bees, for we have got them in our own yard; and our opinion, as before stated, is that the reason for it is a lack of ambition. Perhaps friend Boardman will say the reason for their not swarming is because they are perfectly contented; and if he is right, then we want to say we have more contented bees than we want. We look upon non-swarming bees about as we do on a non-swarming hive with patent moth-trap attachment; and if we put non-swarming bees and queens in such a hive, we have the *ultima thule* of worthlessness. If such would not be the result, we will give one of our non-swarmers to know why. Then, again, will not a queen be more liable to swarm in one locality than in another; if so, then of what moment is a strain of non-swarming bees? There is not the least doubt but that a strain of non-swarming bees would be a bonanza to thousands, providing they were as hardy and prolific as the best strains of Italians, or even hybrids; but in our humble opinion, such a point has not yet been reached; but far be it from us to say that it will not be reached in the future, for it may be possible; but if there are any non-swarming bees that are as hardy and prolific, and as able to send out the field-force of some of our best Italian colonies, we want to see them, and we want to see them pretty bad. Our experience says there are none; but as we don't know it all, we are willing to be convinced just the same, as we are willing to be convinced that there is a better general-purpose bee than the pure Italians. M. W. SHEPHERD.

Rochester, Ohio, May 27, 1889.

I do not think it necessarily follows that the bees would be poor honey-gatherers, because they did not swarm. Some of the

largest results we have known came from hives where the bees right straight along through the season sent a large force of workers to the fields every day, without getting the swarming fever at all. Will the rest of our readers keep this matter in mind? Have you not, most of you, colonies that gather large yields, and do not swarm at all?

## RAMBLE NO. 17.

"IT IS PAID FOR;" COMING OUT OF THE LITTLE END OF THE HORN, ETC.

A FEW years ago a rap came to the Rambler's door; and upon answering it, there stood a very large man with his back toward the door, busily sharpening a lead-pencil. Without taking his eyes from the interesting point of the pencil, or looking to see who was opening the door behind him, he asked if Mr. Rambler was at home. He was answered in the affirmative, and was told that his humble servant was the man he was after. The pencil was silently finished to his satisfaction, and not until then did he make his business known. He introduced himself as Mr. Stephen Carpenter, of Granville, N. Y. Said he, "I am a bee-man and thou art another. I desire to see thy bees." We immediately adjourned to the apiary, and I found my Quaker friend to be an interesting visitor.



MY BIG QUAKER FRIEND AND I.

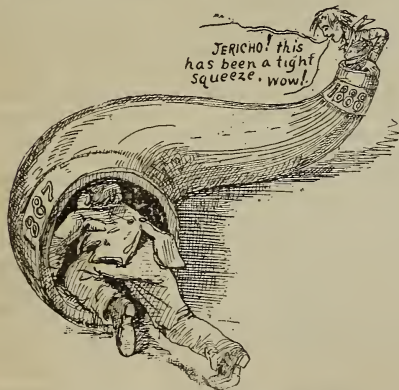
This episode happened several years ago; and since then the Rambler has made many calls on friend Stephen and his wife, and has always found a warm welcome. Mr. C. is now nearly 80 years of age; weighs, when in full health, 315 lbs., and his wife weighs about 100. Mr. C. has ever been a local celebrity for thrift, as all Quakers are. He is also noted for his great strength. A few years since, an article appeared in the *Troy Times*, describing some of his wonderful feats of strength, such as lifting a 1400-lb. cannon; throwing a troublesome steer over the barnyard fence, and taking two insolent men, one under each arm, and tossing them outdoors. These feats Mr. C. is very modest about mentioning. He never tires, however, in talking about his house and grounds. The house was built a few years since under his own supervision; and as we pass around in our inspection, his cane comes down in a pronounced manner, and with the whack come the words, "It's paid for!" We enter a



splendid cellar, the floor flagged evenly with large stones from the extensive slate quarries near by. The cane comes down on the floor, "It's paid for!" A large cistern across one side of the cellar, also covered with large flat stones, receives another whack—"It's paid for!" We go upstairs; every thing is substantial, neat as wax, and "paid for." Although Mr. C. and his wife can not play on a musical instrument, a costly piano graces the parlor, and his hand comes down upon the keys—"It's paid for!" So with the carriage, the horse, and the woodpile—"It's paid for."

Mr. and Mrs. C.'s pride, though they are so far advanced in years, seems to run to the raising of nearly all the garden luxuries of the season. Early and late potatoes, fine strawberries, fruits of all kinds, and last but not least, honey. Mr. C. has kept bees for many years, having them in old box hives; and, getting but little profit from them, they were transferred to movable-frame hives. His cellar has proved a fine repository for wintering, and is the first one the Rambler ever saw where bees were wintered near a large cistern. Though the body of water is covered with a mouse-proof covering, there must be more or less humidity in the air of the cellar; mold does not collect upon any article. The bees keep very quiet, and usually come out in excellent condition; and if there is any loss it is from starvation or weakness when put in.

Mr. C. is very particular to place the hives up a good distance from the floor. Nothing but flour-barrels with boards placed across them will be satisfactory to him. His apiary runs up to about 50 colonies; and finding good sale for his strained honey, an extractor was purchased, help obtained, and several barrels were filled with the nectar. The owner was much elated; and as every thing was "paid for," the dollars that came in from the sales jingled merrily in his pocket.



BIG AND LITTLE END OF THE HORN IN BEE CULTURE.

The bees were carefully put in the cellar in the fall; but it was observed that the hives were not so heavy as when box honey was raised. When spring came, and the bees were put out, a greater portion of them were dead, starved to death. This was a lamentable affair, and Mr. C. characterized the operation as going into the big end of the horn one year and coming out at the little end the next year. And this is not only the experience of our Quaker friend, but of many others, among whom may be found the

RAMBLER.

Friend R., we are very sorry to know that your big friend came out at the little end when he got to using the extractor; but, judging from the picture, even the little end of the horn must have been of pretty good size. There is quite a moral that may be gathered from that little sentence, "It is paid for." I know full well of the satisfaction and pleasant feeling it gives one to be able to say when he has succeeded in getting some work done to his notion, "It is paid for;" and I am afraid a good many of the friends who read GLEANINGS lose a great part of the enjoyment that God has prepared for us, simply because they go through life with an uneasy and guilty feeling of owning property, and using it, perhaps, day after day, without its being "paid for."

### DOUBLE BEE-STANDS.

R. F. HOLTERMANN OBJECTS TO THEM.

YOU will perhaps remember, that at our convention in Columbus, Ohio, last autumn, I objected to bee-stands being close together in pairs. Perhaps the objection is not a very strong one, as it consists only of this: When a colony is made queenless on one stand it will shortly after load up with honey and unite itself with its neighbor, they forming a long and unbroken line into the next hive, if the stands touch one another. Herein, perhaps, the bee shows greater wisdom than man; for many queenless colonies would perhaps be better united with one having a queen than bolstered up; yet when other aims are in view this trait is objectionable, and a little greater distance will easily prevent the difficulty. When, however, it comes to attaching the two stands, I would say, most emphatically, no. Perhaps such careful men as Dr. Miller, with years of extensive experience, may be able to manipulate the one hive without jarring and irritating the bees on the other; but how many bee-keepers have not the capital that Dr. Miller has, and would get the second colony in a very undesirable frame of mind for handling. For this reason I think it objectionable that the general bee-keeper should have a double stand in the apiary.

### SECTIONS WRONG SIDE OUT, ETC.

It does appear extraordinary, when we think of the simple facts required to be communicated to some bee-keepers. The other day, in my travels through the country I came across a bee-keeper who was taking comb honey. The sections were folded *wrong* side in, or *wrong* side out, whichever way you prefer, and then the bee-spaces were turned the *wrong* way, to the side instead of top and bottom. I begged for that crate, and told them I was anxious to exhibit it at the Toronto Industrial Exhibition, but I could not get it. But does it not show us we are neglecting many simple facts in bee-journals? The individual I speak of had for years taken one or more journals at a time. The comb-honey venture is a comparatively new one.

Brantford, Can.

R. F. HOLTERMANN.

I decided years ago, just as you have done, that I never wanted two hives attached together any more. I want each one on a separate stand, and so arranged that I can at any time walk clear around it.

## CENTIPEDES.

THEIR BITE, AND THE USE THE CHINESE MAKE OF THEIR POISON.

NE can not take up an ordinary paper or magazine, and surrender his mind to it enough for healthy recreation, without having his spiritual tone depressed; but in GLEANINGS I find recreation that tones up instead of down. This comes of its treating secular matters in a Christian spirit. A remark which a Chinese Christian once made to me illustrates the difference between a Christian and a heathen spirit. He said, "You are always ready to impart information. With us Chinese, what we know we keep to ourselves; and if we are ignorant, we do not like to ask others for information; for the one we ask would not inform us correctly, but would only glory over us because he knew more than we did."

But I started in to recreate on centipedes. These hardly ever trouble us in our ordinary residences; but at our seaside sanatorium, where many of us have to spend two or three of the hottest months, they are quite an annoyance. In this semi-tropical climate the centipede usually grows to be a little longer and two-thirds as broad as one's middle finger; but it is a very flat creature, and a very strong one too. I once put almost my whole weight on one, under the sole of my shoe; but when I took up my foot it started off as lively as ever; and I once saw a small one dragging off a gecko, many times heavier than itself. Its body is made up of 21 segments, each of which has a pair of legs. How it manages so many when running, I do not see; but Dr. Whitney, who has dissected one, says that its nervous system is very interesting. Each segment has a nerve-center with a pair of white nerves running down into its pair of legs, while a central cord connects all the segments with each other. Just back of the head is a narrow segment, from the under side of which grows a pair of nippers. These are three-jointed. The last joint ends in a sharp black point, while the first one expands into a poison-bag. With us their bite is not dangerous, but sometimes it is very painful. Much depends on the person, the spot bitten, and the condition of the centipede when he bites. In India, where they grow to be a foot long, their nip may be really dangerous. They are timid, and swift of foot, and live in cracks and crevices. They have a habit of crawling about under cover, and hence they like to get under the bed clothes; and when they happen to get on to a person, they prefer the inside of his clothes to the outside. One curious fact about them is that they generally appear in pairs, which seem to be attached to each other.

Several years ago I happened to be awake one summer night, and heard our little daughter whimper in her sleep, saying, "That shell on my ear!" Pretty soon she began to cry, and on looking we found the marks of a centipede's nippers behind her right ear. Fortunately it was not a severe bite. But one morning, as Dr. Whitney was wiping his face, a centipede, hidden in the towel, nipped him about an inch and a half below his left eye. He suffered severe pain for over 24 hours, and the place bitten was red and tender for weeks afterward. The dead centipede was pinned up on the wall, and next morning its mate was found near by it.

One morning last summer I suddenly discovered

a centipede under the breast of my coat. I jerked the coat off in a hurry, and began slapping at the hideous thing, which wriggled around over me so fast that I missed it several times. At last I knocked it off on to the floor behind me, and it dodged down some crack so quickly that I never saw it again. Had I succeeded in killing it its mate would have hung around until it too was killed. But when it escaped with its life, and had informed its mate of its adventure, perhaps the pair agreed with each other never again to go near a *biped*. Chickens will kill centipedes, and the Chinese say that "centipedes fear chickens, chickens fear snakes, and snakes fear centipedes."

The Chinese use the centipede for medicine, on the principle that one poison will combat another. When a centipede has been killed they take a bamboo splinter of suitable length, sharpen the ends and stick the points through the head and tail, and dry the worm stretched to its utmost length. Just now wishing one to examine, I bought one at a drug store for a cent and a half, which, as thus stretched, is 9 inches long—a monster for these parts.

## TIGER-HEAD HORNETS, AND THEIR VINDICTIVE TEMPER.

Once four missionaries, an Englishman, a Scotchman, a Yankee, and myself, were on our way to take a look at a famous Buddhist monastery on the side of a mountain. We were walking up hill with our Coolies and sedan-chairs following behind us, when we spied a large hornets'-nest hanging from a small pine, about 50 feet from the road. The hornets were about twice as big as any I ever saw in America, and the Chinese called them "tiger-head hornets." The Englishman proposed that we knock the nest down, while I advised them to let it alone; but he began to look for stones, and the Scotchman began to throw them. I started on. A stone struck the tree, and immediately two or three hornets came over to inspect us. I quickened my steps; but the next stone hit the nest, and the hornets came at the thrower as straight as a shot from a gun. We all started to run up hill; and our Coolies, half naked, seeing us running, came running after us, right into the midst of the angry hornets. The Englishman, who was the prime mover, did not get a single sting. I had a slight one, the Yankee two severe ones. The Coolies also were stung, and they said, "There is no heaven's justice in this; we did nothing, and yet we got stung." But the Scotchman was stung in six places, and was in fearful pain for an hour or so. There was one while that he fairly quivered from head to foot, like one in an ague fit. The Chinese said it was a rash thing to attack a nest of tiger-head hornets. They had been known to sting a man to death. I asked the Scotchman what he thought of the promise to send hornets before the children of Israel. He replied, that he thought the plan might have been quite an effective one.

J. E. WALKER.

Shao-wu, China, Jan. 26, 1889.

Thanks, friend W., for setting us right on the centipede matter. Now, is there really any virtue in these dry centipedes, kept for sale at the Chinese drug-stores? Does the poison have any such medical property as the poison of the bee-stings? If so, why don't the doctors simply save the contents of the poison-bag, and not have a great horrid-looking worm to be handled and given store room? The tiger-head hornets you



speak of are probably something after the fashion of the *Apis dorsata*. I have seen our own hornets fly from their nests just as you state, as straight and almost as swift as a shot from a gun. Why in the world didn't some of you caution the Coolies, instead of letting them get stung in that way, when they were entirely innocent? I should not have blamed them if they had turned around and commenced stoning the whole of you white people—missionaries and all. We should like to see one of those big hornets, preserved in alcohol.

the hot weather will blast it; if put in later, early frost will catch it. But with the Japanese, both are obviated. I prepare my ground as I would for oats, and sow not more than a peck to an acre. You will get more grain from that amount, on an acre, than any larger amount. Try it as I have, and be convinced. L. P. COUSINS.

New London, Wis., May 27, 1889.

## HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WHY DO LAYING QUEENS DESERT THEIR HIVES  
SOMETIMES, AND ENTER OTHERS?

I AM sorry to inform you that I lost that nice Italian queen you sent me last summer. I had just got her a good colony built up in five weeks from the time I got her, and she left her hive and I found her one morning on the alighting-board of another hive, on the opposite side of my yard, with a lot of bees balled up on her, about the size of a walnut, and they had killed her before I found it out. I can't tell what possessed her to leave her hive and go to another. I had her in a hive that was painted white, and the one I found her on was a marble-colored hive. I took what eggs she had and gave them to some queenless hives, and got several queens; but none ever produced as yellow, nice Italians as she did. She never laid a drone egg while she stayed with me, and of course the queens I got from her had to meet the drones from my other bees, which were not very good Italians. I want to get another queen of you after a while, and try my luck again. McDaniels, Ky., May 21, 1889. J. H. HART.

I am aware that queens apparently in a normal condition do sometimes get out of their own hives, and go into an adjoining one, or into some other hive in the apiary; but I have never been able to give any explanation of it, more than that the colony had swarmed some time when no one was around; and the queen, not being able to follow the bees, on account of a clipped wing, or for some other cause, had crawled along the ground, entered another hive, and succeeded in displacing the reigning inmate. If your queen's wing was clipped, this might be the explanation.

JAPANESE BUCKWHEAT SUPERIOR TO THE COMMON  
FOR HONEY.

I got one pound of Japanese buckwheat from you in the spring of 1888. I sowed it on new land full of roots, as I just took the timber off. I got over 3½ bushels of seed, much nicer and plumper than that I got from you. I had a few stalks of the old variety; and while the heads felt like chaff, the Japanese was loaded with grain. I think this will take the lead, and all others will go to the wall. I agree with Prof. Cook as to its being a honey-producer, for the bees worked on it all day, while they left the other before noon. The great trouble with buckwheat in this latitude, 44½°, is, if put in early,

WHO IS THE RIGHTFUL OWNER OF THE SWARM?

I should like your opinion as to the rightful ownership of a swarm of bees. I have 33 colonies of bees, probably three times as many as the whole neighborhood within a range of three miles. One of my neighbors found a swarm on my place, about half a mile from my bees, on an apple-tree, and came to me to get a hive and borrow my bee-veil and smoker. Now, in all probability the bees were mine, and to say the least I thought it looked a little cheeky. Now, who was the rightful owner—the man who found them or the man whose place they were found on? G. F. STEEVES.

Panama, Neb., May 11, 1889.

As you state it, the bees are yours, without question. The old clause in our laws that applied to bees found in a forest would not apply to a swarm of bees found in one of your own apple-trees on your own premises. Any justice or any jury in the land would decide the matter in this way, without any question.

THE GOLDEN BEE-HIVE, AGAIN.

The "Golden" bee-hive, shown up by GLEANINGS a few years since, has made its appearance in our midst, sold by one Pickerls. Has the fellow a patent on this hive or not? None of our intelligent bee-men buy said hive, but find voluminous objections thereto. Ten dollars for *family right* is the small tax he requires, and some pay it. Amite Co., Mississippi, paid about \$1500 for its use.

W. F. ROBERTS, M. D.

Clinton, La., May 21, 1889.

It is not worth while to inquire whether there is a patent on the Golden bee-hive or not. It has been reported as a humbug and swindle for ten or fifteen years past, and every one who hears of it should take pains to post people in reference to it. The operations of those who have it in hand are fully given in our back volumes. You had better let patent hives alone entirely. I think every intelligent honey-producer at the present day will second this advice. See extract from Dadant's new book, on the first page of editorial matter in last issue.

FEEDING IN SPRING, ETC.

1. What is best to feed in spring to stimulate brood-rearing?
2. How much should be fed each night?
3. Will such feeding pay?
4. Do you think honey-boards or separators are any hindrance to the bees? LESTER JUDSON.

East Sidney, N. Y.

1. The best feed to give the bees in the spring, for stimulating, is granulated-sugar syrup; but from motives of economy it is better to give them combs containing old or dark honey, or if you have some old extracted that is not salable. First heat it, to make sure that you kill all germs. and then

feed it back to the bees. During the spring you can give the bees almost any thing they will take. A great deal of old surplus, or sweets of any kind, can be used to good advantage. 2. We would advise you to feed about a pound daily until they are supplied. 3. If you wish to produce comb or extracted honey, or even to sell bees by the pound, such stimulative feeding will pay, provided the natural sources fail. 4. Our best authorities agree that honey-boards and tin separators are no hindrance to the bees. If they are a hindrance, certainly no one is able to observe it to any appreciable extent.

#### MOVING BEES UNDER RISKY CIRCUMSTANCES.

I had 20 hives moved 3 miles on a warm day, the 24th inst., and there was scarcely a hive from which bees could not crawl out at poorly fastened entrances or warped corners. Bees were flying when each load arrived home. Horses were not stung that we know of, and the bees did not sting me. I used a veil for only a few minutes. I was scared when the first load arrived, but found no harm was done. I was not alone. G. F. AYRES.

Atherton, Ind., May 22, 1889.

It is almost a wonder that you succeeded as well as you did, under the circumstances. We would not advise you to try the experiment again, if you value your horse and wagon.

#### ABSCONDING AND COMING BACK.

On Sunday, May 5, I had a very large colony of hybrids, two-thirds Italians, swarm. There was no one at home at the time to hive them, I being at church. They hung on a limb for over two hours, and finally went away. They stayed away for three days, when, lo and behold! on Wednesday they came back and clustered on the next tree. Having nothing prepared at the time, I took a band-box, cut some holes in it, and put it on a pole about 20 feet long, and got them down into the old hive. Then I put a piece of perforated zinc in front to keep the queen in. In another day or two they came out and clustered on a vine near by; but the queen not being able to get out also, they soon went back. I then went to work and divided them. I know that these bees must be mine, because no one else has any Italian bees around here. Please let me know if you have any bees that cut up such capers. J. C. HERBENER.

Portsmouth, Va., May 18, 1889.

Thanks, friend H. I have heard of swarms going off and coming back again. They probably discovered, after they had commenced housekeeping, that their move was rather premature; and rather than starve to death they wisely decided to go back and stay a while longer in the old hive.

#### THE HONEY CROP FOR CALIFORNIA AN ENTIRE FAILURE.

The honey crop of California will be nearly an entire failure this season, owing to those two dry months during January and February. We have also had too much cool, unfavorable weather. I visited friend Wilkin on the 25th. His bees are in fine condition, but not much honey gathered. Rather discouraging, but we are getting accustomed to bad seasons. Our good seasons repay considerably for losses. M. H. MENDLESON.

Ventura, Cal., May 27, 1889.

#### "BOOMING."

Bees are booming here now, and we are having lots of fun hiving them. The clovers are just coming nicely into bloom, to keep raspberries and locusts company, which I never saw before—the three in bloom at one time. Clover is fully ten days earlier than last year, and it bids fair to give us a fine lot of honey. Sumac and basswood are well budded, and promise well. Oh how different from last year! A. E. MANUM.

Bristol, Vt.

## OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 130.—*What special means, if any, do you use to get the bees to work on sections?*

None.

A. B. MASON.

Fill them with foundation. MRS. L. HARRISON.

Plenty of bees and honey seem to be necessary.

P. H. ELWOOD.

I have no trouble to get them to work when they are in proper condition to do so. GEO. GRIMM.

Put a few sections into the super that has comb in it. E. FRANCE.

Put in the center of the first super a section which has had honey in it before. C. C. MILLER.

Get all the brood-frames as close together as possible, so as to leave just enough space for the bees between each comb. PAUL L. VIALLO.

a. Contract; b. Reverse frames; c. Put comb in sections; d. Put little drone brood in sections. I do not use the same now. A. J. COOK.

Get the combs below filled with brood; then when the honey comes, the bees must take it to the sections, as they have nowhere else to put it.

G. M. DOOLITTLE.

If the colonies are populous, and each section is properly filled with foundation, they will usually occupy the sections if the flow of honey is good.

L. C. ROOT.

With large hives full of worker combs, and prolific queens, after a good wintering and an early breeding, we have never seen bees refusing to work in the surplus apartment if a few combs are placed in it.

DADANT & SON.

There are no other means to make bees work in the surplus boxes than a flow of honey, and the fact that the brood-chamber is about filled. A piece of comb or foundation, from top to bottom, in each one of the section boxes, serving the bees as a ladder to run up on, is an inducement. C. F. MUTH.

I get the brood-chamber full of bees and brood by the beginning of the honey-flow. That is all that is necessary. I rather prefer, though, to have the first honey gathered stored in a set of extracting-combs. Some bees will begin to work more readily on empty combs, and they work to better advantage on them when honey is coming in slowly. I would not use these, though, if the honey-season began with a rush. JAMES A. GREEN.



There is something about this question that is to me very suggestive. The bees are more reasonable in this matter than some apiarists seem to be. They will not store their honey up in a garret so long as they can take better care of it downstairs. When the conditions are favorable, and honey is plentiful, they will take possession of the surplus apartment, and you can't keep them out, even if you should try. If you think you can, try it some time and report your success. H. R. BOARDMAN.

I do not keep bees that need special measures to make them put honey in the sections, when there is any to put there. If I kept such, possibly I might insert a chunk of young brood in one of the sections. As for putting on half a dozen sections, bees and all, from a better colony, I don't believe I should do that. My sections of empty comb left from last year I divide up among the different colonies, and put them in the center, directly over the brood. This is to some extent an inducement to go above. E. E. HASTY.

This question seems a queer one to me, and, answered from my standpoint, my answer may seem strange to you. My bees never falter in entering the surplus apartments, at storing time, for either comb or extracted honey, the moment the flow furnishes any surplus, provided, of course, the colonies are of normal strength. Now, you may put your question to me again, to know what means I have used to bring about this condition of affairs, which does not seem to exist in every apiary, I take it, from your question and others similar. In the first place, I carefully breed my bees for honey-gathering and comb-building qualities or propensities. I study the shape, size, and manipulation of my brood-chamber in connection with this important feature; also the surplus apartment to some extent. JAMES HEDDON.

It seems to me that friend Heddon and some others rather ignore the need of getting bees to commence work promptly. I have seen a colony cluster on the outside of the hive when honey was coming in at its best. An examination of the combs showed that they did not gather a pound a day, while other colonies not as strong would gather six or eight pounds a day; and this same colony that had been thus wasting its time, when they once got started would store eight or ten pounds in 24 hours. When bees get the swarming mania they are quite apt to act in this way, and a swarm will sometimes persist in hanging idly outside and sometimes inside of the hive, instead of going to work. I have made such commence business by driving them into the hive with a smoker—at least, they commenced after being well smoked, and I suppose that smoking gave them the hint. Where a newly hived swarm deports itself in this matter, it is pretty evident that they are dissatisfied—may be because they had picked out a tree, and were bound to go to the tree instead of staying where they were. A new swarm that does not go to work is very apt to turn up missing some time during the day. Now, I am not sure that I can prove it conclusively, but I am pretty well satisfied that a frame of brood is quite an inducement for such a swarm to go inside and commence comb-building. When you

get them under way, of course they will go to work in surplus boxes or anywhere else.

QUESTION 131.—*a. In tiering up supers, should the empty one be put under or over the one partly full? b. If you practice both ways, tell when you put under and when over.*

Over.	O. O. POPPLETON.
Under.	A. B. MASON.
Under.	MRS. R. HARRISON.
Under.	P. H. ELWOOD.
Put the empty ones over.	L. C. ROOT.

I have always put it under. I do not know that it is always wise to do so. It works well with me.

A. J. COOK.

I have practiced both ways. All things considered, I prefer placing the empty ones on top, every time. H. R. BOARDMAN.

I always put the empty ones below the partly filled; but before adding I get the first case at least three-fourths full. P. L. VIALON.

I do not practice tiering up, believing that there is a better way. As usually done, the empty super is put under the other, when the first is full.

G. M. DOOLITTLE.

Bees work downward, as a rule. Empty supers should always be put under supers which are almost finished, and not until they are almost finished. Otherwise the upper super will remain unfinished longer than is desirable. C. F. MUTH.

a. Sometimes under, sometimes over. b. In a heavy yield I put the second under; and, in general, so long as I am almost sure all will be filled. If I am not sure more are needed or will be filled, or in general toward the close of the honey-flow, I put the empty one on top. C. C. MILLER.

Under, by all means. If you think it unlikely that another super will be completed, you might put the empty one on top; but in that case I would much rather use a set of extracting combs. This method saves all the honey, and avoids the expensive nuisance of a lot of unfinished sections.

JAMES A. GREEN.

We nearly always put the empty super under the one partly full. If the honey in the super is mostly sealed over it should be raised, and the second put under it; but if the super is only partly filled, and another has to be given, owing to a very large yield, the second one may be put on top; but the other way is the better one. DADANT & SON.

When I have a super from half to three-fourths filled I put an empty super under, if I expect the honey-flow to last a few days longer. But, as in the case of the basswood harvest being nearly over, then don't disturb the super that is partly filled; let them finish that. One super well filled is worth more than two partly full. E. FRANCE.

I use mostly wide frames holding two courses of sections, and they never need tiering up to carry the crops gathered here. If I used crates, and wanted to put on a second one, I should put it over. I have confidence in my bees that they would go up if it were best to do so. Whereas, if I put their half-finished work up stairs, the danger of its being left unfinished until they began to carry the honey down would be too great. E. E. HASTY.

a. The empty ones should be put over, and should be put on before the lower ones are ready to seal, except at the very close of the season, when great care should be taken not to add sections until the others are sufficiently filled to insure their being sealed, even if the season should suddenly close. I used to put the empty ones under the others, but found that I often got left with a great many unfinished sections on my hands—an evil which I now almost entirely avoid.

GEO. GRIMM.

As a rule, the partially filled one should be raised up and the empty one placed in under. There are several reasons for this. Prominent among them is the fact that the bees are not as apt to soil some of the combs before all of them are finished. I advise as above. Remember, that in this feature of our business every thing is against us in the fact that, as the room decreases, the colony increases. It is like two men going toward each other. They meet almost before they know it.

JAMES HEDDON.

It has been so much my habit to put the case of empty sections under the full one, that I have hardly tried any other plan, although it is true I have often had just the result mentioned by several above; i. e., a great lot of sections with a little start, and may be a little honey in a good many of them.

QUESTION 132.—*I have a number of combs every spring (from dead colonies) that I wish to keep clear of moths and worms till they can be used at swarming time. What is the best way to manage them?*

Put them into a tight room, and brimstone them occasionally.

P. H. ELWOOD.

I have always saved mine by inserting them in strong colonies.

O. O. POPPLETON.

Put them into a perfectly close box, early in spring.

A. J. COOK.

Leave them where they will freeze during the winter, and you will have no difficulty in keeping them until swarming time.

H. R. BOARDMAN.

Here it is one of the hardest things to do. The best way is to put them on top of strong colonies. This refers to this part of the country, where our bees need no winter protection.

P. L. VIALLO.

If hung in a cool airy place, leaving two or more inches between each comb, you should have no trouble from this source up to swarming time. If you do, put them in a tight box or room, and sulphur them.

G. M. DOOLITTLE.

Hang them up in a shed or other out-building, with at least two inches space between the frames; or put them in a hive, in a like shape; raise the cover so as to admit the light; catch one or two spiders and place in each hive.

MRS. L. HARRISON.

The best way with me has been to hang them at least an inch apart, in a dry cool place. If the place is damp, the combs will mold. I have kept them in a dry warm place (the barn chamber) in the same way.

A. B. MASON.

Hang them in a closed room, and burn a little sulphur under them at least twice, at intervals of 15 days. Ours are placed in cold rooms during win-

ter, and we have had, for years, several thousands of them used for extracting.

DADANT & SON.

Clean them up by scraping off all dirt and propolis from the frames, and cut out all bad patches from the comb. I put them into empty hives ready for hiving, and find there is no danger from moths if used during the first season. If they have to be kept over for another season they should be put on strong colonies, to be thoroughly cleaned.

GEO. GRIMM.

I keep them in a dry cool place. They should not be piled so that one comb rests against another. If well spread out, the moth is much less likely to disturb them. Such as contain pollen or portions of brood should be kept by themselves and examined more frequently, as they are more liable to be attacked by the moth. They may be fumigated with sulphur if worms appear.

L. C. ROOT.

I can do it best by piling them on top of other colonies, especially the stronger ones. If taken off here in the winter, and piled up in supers outdoors, leaving the combs three-fourths of an inch apart, they suffer but little damage from moth before I need them the next season. Placing them in a moth-proof room, and smoking thoroughly with sulphur, is effectual but more costly.

R. WILKIN.

We have a plastered room 10 feet square, in which we put all such combs; look at them as often as once a week, after warm weather commences; and if we see any signs of worms we go down cellar and burn one pound of sulphur in a little stove that we have there for that purpose. The fumes go up into the room above through a four-inch pipe. If the room is closed tight, every living thing in the room is killed; then if the room is kept closed tight we have no further trouble. We used to smoke combs in a large box, before we built our smoke-room.

E. FRANCE.

If you can discover the dead colony soon enough, provided they die early enough, expose the combs to a temperature of 16 below freezing, which will be 16 above zero; that will kill every moth-germ. Then all you have to do is to shut the combs away from the miller. On the other hand, if the germs are not destroyed, my plan is to keep the combs in a cool, airy room, hanging them on rabbeted strips nailed to the ceiling, being careful not to let them touch each other. Leave them an inch apart. You will find in this condition the moths will make you no perceptible trouble.

JAMES HEDDON.

I hang my combs in boxes, no closer together than they hang in the hives, exposed to the cold of winter, which kills the eggs and larvæ of the wax-moth. Care must be taken to keep mice out, as they will ruin the combs in their endeavor to get at the bee-bread. If the wax-moth gets in the combs before I can put them on hives, I set those boxes of combs close, one upon the other, about 10 high on a tight board, and burn about one-fourth pound of sulphur placed in some vessel (an old pie-plate) in an upper empty box, and cover it up. Sulphur fume being heavier than air, settles down slowly but surely, and kills every moth in the combs.

C. F. MUTH.

Nail strips of wood to the ceiling or rafters of your honey-house, so that the combs will hang on them just as they do in the hives. Hang them up, as far apart as convenient, exposed fully to light



and air, and the moth will seldom trouble them. I have kept empty combs thus through two summers, without any loss. If worms do get into a few combs they may be detected at once and sulphured, either where they are or by removal to a tight box. Never try to keep combs out of sight in empty hives or comb-closets. The warmth, darkness, and nearness together of the combs will invite the ravages of the moth-worm. It is almost impossible to keep them out altogether, and under such circumstances they increase so rapidly that, unless the combs are looked after almost daily, they are never safe, and may be completely ruined within a very few days after they seemed all right.

JAMES A. GREEN.

Keep them in a cool cellar, and the worms are not likely to trouble till it grows warm. Then put a queen-excluder over a colony hardly strong enough for supers; pile on empty combs three or four stories high, and put a frame or two of brood in the upper tier. Perhaps the best way is to put the combs in a hive, put this hive on a stand under the colony, so that the bees must pass through these combs to go in and out the hive. You can put them there as early in the season as you please, for it costs the colony no heat. If there is any honey in the combs, look out for robbers by giving very small entrance. Even then you may need to watch. But you can feel sure a colony of Italians will keep the worms down.

C. C. MILLER.

I have a nice comb-closet, double-walled and sawdust-packed, in which combs are put and fumigated with sulphur; and when I don't get around in time, the worms destroy a jolly lot of them in there. Sometimes a set of combs gets left in a hive in the yard for the whole season, in the care of ants and spiders, and I find they usually do a very fair job at it. Perhaps there is a hint worth heeding there. In the usual careless way of burning sulphur, one third melts and runs down into the coals and ashes; one third merely sublimes, instead of burning as it should, and only one third (often very much less than that, I fear) is properly converted into gas. There should be a tin tube running from the outside, through which the fire can be steadily blown with the smoker.

E. E. HASTY.

The above replies cover the whole ground so thoroughly I hardly need add anything to them. I want to thank friend Hasty, however, for calling our attention to the fact that letting sulphur run down into the ashes is not burning it; neither is making it pass off in vapor, or (as he terms it) subliming it, burning. Where much sulphur is to be burned, I do think it would pay to have some sort of an implement that would make thorough work of it, and convert every bit of the sulphur into sulphurous acid. It seems to me that some sort of utensil could be arranged, with draft enough so as to obviate the necessity of blowing it with a bellows. Can any one tell us more about it? As a rule, I believe that combs will be safe from the depredations of moth if hung up in the open air a couple of inches apart, as has been suggested by many. Perhaps if there were much pollen in the combs, however, this might make a difference; for I believe, as friend Muth suggests, that pollen is the principal food of the moth worm. Another trouble about hang-

ing them up in the open air is, that if they contain a little honey they will incite robbing. Where bees are destitute of propolis, they will often gnaw to pieces the combs, when convenient of access. On this account I should prefer a room, not only to keep out the moth, but to keep out robbers and all other insects.

## ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth \$1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

G. G. G., Pennsylvania.—Situated as you are, and as in old age you can not climb trees, we would not advise you to allow swarming. Your better way would be to divide. Read the article on Artificial Swarms, and also Dividing, in the A B C.

J. C. G., Virginia.—To get the largest return in extracted honey, you should not prevent your bees from swarming entirely, but you may discourage it largely. Give the bees plenty of room and shade. Do not let them get at all cramped for room. For after or second swarming, keep the cells all cut out but one. See Question-Box for last issue.

### HONEY STATISTICS.

H. W. B., Virginia.—The Honey - Producers' Exchange, gotten up by eastern bee-keepers, will in no way conflict or interfere with the usual statistics for GLEANINGS. Both will be found to be useful to bee-keepers at large.

### SHIPMENT OF QUEENS, AND OUR GUARANTEE.

E. B., Ontario.—We do not guarantee any of our queens beyond safe delivery, because stock of all kinds, whether queen-bees, or cows and horses, are liable to deteriorate at any time after delivery into purchaser's hands, the breeder himself not being in any way responsible for the result, if it can be proven that the stock was healthy at the time of sale.

### SAWDUST IN PLACE OF CHAFF; ITS VALUE AS AN ABSORBENT.

W. B. M.—Sawdust will answer in lieu of chaff, in chaff hives. The only objection to it that we know of is that it makes the hive just so much heavier to lift. There is this to be said about chaff, however, that it is lighter, and more porous. O. O. Poppleton rather gives the preference to dry pine sawdust, next to timothy chaff.

### HOW TO RAISE PURE ITALIAN QUEENS IN LOCALITIES WHERE THERE ARE BLACK DRONES FLYING.

J. N. P.—Yes, you can secure purer queens by killing off your neighbors' drones by means of the drone-trap, if they (the neighbors) are willing. It is possible that you may be able to raise pure queens; but to do so, see that all drone brood is destroyed, and that all the flying drones are captured in the trap. In the meantime, raise as many Italian drones as you can.

THE DOVETAIL ON THE NEW HIVE NOT A DOVETAIL IN A STRICT SENSE, BUT STRONG ENOUGH.

H. F. H.—The dovetail on the new hive is not a dovetail in the strict sense of the word. It is just the same as the dovetail on the sections, only on a larger scale. It would be impossible to make a true dovetail, and make the hive cheap enough to be used by ordinary bee-keepers; but when the present joint is strong enough to hold a man's weight on its diagonally opposite corners, what need have we of a stronger corner?

WHY BEES DO NOT GATHER HONEY SOMETIMES.

L. L., Arkansas.—The reason, doubtless, why your bees are not doing anything is because there is nothing in the fields for them to gather—or, at least, not at the time you mention in your letter. There are only certain times in the year when bees can gather honey and store surplus. A good deal depends on your locality. If you consult some old bee-keeper in your vicinity he will tell you when you may probably extract honey; but there are exceptions to all periods, when the honey-flow is usually pretty good.

I. F., Tennessee.—The reason why your bees appear crosser at one time than at another is due, perhaps, altogether to the difference in conditions, both in weather and time of day at which you make your examinations. When the weather is a little chilly, or after a rain, or toward evening, or when honey has suddenly ceased coming in, the bees are apt to be cross. As we judge you have the A B C book, please read the article on stings; also "Anger of Bees." After having read these you can better judge of the proper time to examine and handle your bees.

IS IT POSSIBLE TO SET OUT HONEY-PLANTS IN SUCH ROTATION AS TO KEEP THE BEES BUSY THROUGH THE SEASON?

G. D., Australia.—It is barely possible, but hardly practicable or feasible, to grow honey-plants in such rotation as to keep the bees busy from one season's end to the other. We have experimented in this matter quite largely, and we find that it does not pay to set out those honey-plants which do not yield any other revenue than the honey they may furnish the bees. We have been in the habit of recommending, for several years back, setting out only those plants which will pay in the seed crop, providing the blossoms should yield little or no nectar. Buckwheat and alsike are both tolerably safe investments.

IS IT FOUL BROOD, OR CHILLED BROOD?

I. N. H., Ohio.—It is possible that you have foul brood, although from your brief description we can not say for certain about it. We have sent you our A B C of Bee Culture. Please read the article on foul brood. You can tell very quickly whether you have the disease, by a careful comparison of the symptoms. We would advise you not to be in too great a hurry to decide. During the last few days, a good deal of chilled brood has been reported, and we have had more or less of it in our own apiaries. This brood, of course, dies, and sometimes causes beginners to think that they have foul brood. Be sure not to confound the two. Chilled brood is simply brood that has died and shrunken. There is no ropiness about it, and it does not turn brown, as does foul brood.

WILL THE WIND BLOW OFF SUPERS WITH SQUARE EDGES? HOW TO MAKE A 3/8-INCH GROOVE.

W. P. D., North Carolina.—No serious trouble has been experienced from supers blowing off, having square edges. The bees will soon stick them with propolis, so they will hold their position. This kind of super has been used for a good many years, and little if any trouble has been reported on this score. Making a projection, or a telescopic joint, for dovetailed supers, would be only adding to the expense of the hive, with but little if any thing to its general utility. To make a 3/8 groove on a 14-inch mandrel, use a wobble saw. One of your common saws will do, used in connection with wobble washers, which we sell for 25 cts. a pair. There is no cutter-head nor combination of saws that will make a 3/8 cut as nicely and easily as the wobble saw. By the use of the washers spoken of, any of our common mandrels can be readily adapted to it.

DISINFECTANTS, NONE RECOMMENDED BUT BOILING WATER.

A. C., New York.—We have very little faith in anything to clean hives of any kind, of the germs of foul brood, except boiling hot water. We have tried acids and such other disinfectants as are usually effective in other maladies. Even hives that have never been disinfected at all, will sometimes contain a new healthy colony for four or five months before transmitting the disease to its occupants. There is a great liability of making mistakes in testing any remedies or disinfectants, for the very reason that it may be months and months before the hive would impart the disease, even without any disinfectant. We feel quite sure you will have further trouble, in a year or so. We experimented very largely in this matter of disinfecting hives, and have tested diseased hives that have never been treated at all—the latter not showing a trace of the disease in the occupants for six months after the old diseased colony had been removed.

WHY THE BEES SOMETIMES CARRY OUT YOUNG BROOD; A STRIPED WORM.

L. L. C., Virginia.—At this season of the year, particularly after cold freezing spells, it is nothing uncommon to find a few immature young bees and larvæ carried out at the entrance. Their presence at the entrance may be due to either one of two causes. First, they may be what we would call chilled brood. Warm weather coming on early in the season, the queen enlarges beyond the capacity of the workers, and during a sharp cold spell, later on, the brood, some of it, chills. The cluster of bees always draws up a little closer during a freeze, and they not infrequently compress beyond the outside limits of some of the brood. Second, it is possible that the colony is on the verge of starvation; and as brood-rearing consumes stores rapidly, the bees, to diminish the consumption, sacrifice the brood by carrying it out rather than to sacrifice the whole colony. There is one other reason why bees carry out young brood; but it seldom happens, except among hybrids and blacks; that is the ravages of the moth worm. Where the colony has nearly been used up by bee moths, mutilated larvæ in all stages will be found near the entrance every morning. The great worm with dark gray stripes around its body, which you mention, we feel pretty sure had nothing to do with the dead brood at the entrance. Its appearance was only a coincidence, we think.—May 2, 1889.



## NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

### THE MINORCAN BEES.

**W**ILL you please inform me about Minorcan queens or bees? Are they docile, like the Italians, or are they like the blacks? What race of bees are they? Are they any good? Bees are working on maple; no winter loss.

JOSIAH EASTBURN.

Fallsington, Bucks Co., Pa., Apr. 8, 1889.

[Not much is yet known respecting the Minorcan bees and queens. Mr. F. F. Andreu, of Port Mahon, Island of Minorca, Spain, says they are fairly good-behaved bees, though, if we are correct, not quite so gentle as the Italians nor so vindictive as the Eastern bees. They are fairly prolific. Mr. Andreu can furnish such particulars as you require. He writes English.]

### BEES JUST BOOMING.

Bees are just booming out here. I have had two swarms, and every hive in the yard is working in the sections.

JOHN BLODGET.

Flag Springs, Mo., May 25, 1889.

### SNAKE IN A BEE-TREE.

Not long since I found a bee-tree; and when I cut it, in the hollow with the bees I found a good large black snake, but very few bees, and no honey. From the looks of the comb I thought they must have gone in the tree last season.

S. L. MEDLIN.

Moltke, Tenn., May 18, 1889.

### FEEDING INSIDE OR OUT OF THE HIVE.

How far away from my two hives must I put syrup to feed them (I suspect their honey is getting scarce), so that they won't begin to "rob?"

Red Creek, N. Y.

A. D. MCINTOSH.

[Do not put the syrup outside at all. Put it in a pan, or, better, a regular feeder inside of the hive. If there is not room in the hive, put on another super or body, and place the feeder on the frames.]

### WHY ARE BEES CROSS DURING SWARMING TIME?

Why is it that bees are so cross in swarming this year? I never had trouble before. I know of others the same way. I have the Italian bee. They have been well fed this spring, and they are strong and healthy.

W. N. GEORGE.

Mechanicstown, O., May 30, 1889.

[If you have had such weather during the month of May as we have had here, I do not wonder that the bees are cross. A great part of the time it has been too cold for the bees to fly, and too cold for them to secrete honey, besides being rainy to an unusual extent. Cold storms always cut off the honey-supply, and make the bees cross.]

### HIVING IN 30 SECONDS.

Prepare a one-story hive by lightly nailing the bottom to it with large entrance; leave out the frames. Prepare a one-story hive with frames for the bees to occupy. Place all convenient to where the bees have settled; shake the bees into a large-mouthed tin pan; dump them into the story without frames; place the one with frames on top of it; tap lightly on it and the bees will go up into it, and the work is done. I was timed, a week or two ago, and I hived a swarm in 30 seconds.

Hornhill, Texas, May 17, 1889. G. L. JENNINGS.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

### MY BROTHER'S BEES.

My brother has six stands of bees. He got 128 pounds of honey last year. We ate over half of it, and sold the rest.

MAUD CHADWICK, age 10.

Lorings, Kan.

### TURKEYS.

I saw your notice in GLEANINGS. I don't know much about bees, so I'll write about turkeys. Every one knows that they are easily drowned, and they must be kept out of the water when they are little. This fact every person may not know: That some who have the best success in raising them feed them quite often broken dishes pounded into small pieces.

MARTHA WRIGHT, age 11.

Cooperdale, O., Feb. 26, 1889.

### BEES AND TURKEYS.

Papa had 120 colonies last fall. He doubled up some of the weak ones, and now has 114. He makes his own foundation with the machine he bought of you. We also raise turkeys. We have the bronze, and we have a pair of wild ones. Last year we raised some half-bloods that weighed 20 lbs. when six months old. They were the finest in the market. The wild ones are the prettiest, and will fly much higher and further.

RAY C. JOHNSON.

Venice Center, Mich., Mar. 6, 1889.

### SWEET POTATOES, HOW TO KEEP.

Father has been keeping bees for 20 years. He caught his first swarm when he was 16 years old. The winter of 1870 they all died, and last winter all died but three stands. He has eight stands now. He uses Simplicity hives. I believe it is not generally known that sweet potatoes wrapped in paper, each one by itself, and kept in a dry place, free from frost, will keep all winter.

Oxbow, Ills.

ALBERT FORREST, age 13.

### A SNAIL AND A "POISON THING."

Papa hasn't any bees, and so I can not write about them, only that he is going to get some as soon as he can. One day I found a snail. It was all like glue, and had a cap on his head; and it could raise it up and stick its head out. I liked to watch it crawl. My sister and I went to get some wood, and we found a poison thing. It had two feet in front, like a crab's feet, and had a tail, on the

end of which was a curl, and papa says that they kill people.

GRACIE PADDOCK, age 9.

Lucky Queen, Oregon, May 29, 1889.

We are a little curious to know more about that "poison thing" which you mention. Ask your papa the name of it, and tell us in your next letter.

THE CHAPMAN HONEY-PLANT; HOW TO GET THE SEED FROM THE BALLS.

I want to ask you how to hull the seed out of the chaff of the Chapman honey-plant. We don't know how to get the seed out of the chaff. The bees work strong on the balls. I was a bee-man all last summer. Pa has been sick. We got 27 swarms; 4 went to the woods. We got 85 lbs. of honey last summer. It was a poor season for bees here.

Monticello, Ind. HOWARD WHITCHER, age 11.

It is a very difficult matter to get the seed out of the hulls without a machine. The only machine we know of is owned by Mr. Chapman himself, of Versailles, N. Y. He has described it in one of our back volumes, but you might write him in regard to it.

NO CALF TO KICK OVER HIVES.

I am ten years old. I like to read the letters in GLEANINGS. I love to go to school. We have a dear good teacher. She is not cross, as that other boy said his teacher is. We keep several hives of bees, but we have no calf to kick them over; but we have an old horse. He got near them, and they began to sting him. He ran away, and hid behind the stable; but the bees soon found him and stung him very badly.

GEORGE TEGMEIER.

Carpenter, Ill., Mar. 29, 1889.

POLLEN FROM PUSSY WILLOW.

I will write you about bees. The first pollen I saw our bees fetch in was the first of March. It was from what we call pussy willow. We have 120 swarms of bees. We have not lost very many yet, but we have doubled some that were too small. We have had two fertile workers. The way we get rid of them is to put a heavy swarm with them that has got a good queen.

SWEET POTATOES.

We tried Mr. Root's plan of cutting sweet potatoes in two, and they all rotted for us.

CHAS. CHAPMAN.

BEEES IN GERMANY.

My father has two apiaries, one in Germany and one in this city. I was in Germany two years ago, in Ottersberg, Hanover. I noticed that there are more bee-keepers there than in any place else. The hives they have there are made of straw, which they claim are the best. I have also seen the Gravenhorst "bogenstulper." My father keeps his bees on Simplicity frames. He has a house apiary large enough for a hundred of these hives. He has the light hives like the Simplicity hives, in Germany. My father has your A B C. I love to read it. Our bees are all gathering pollen, and we are going to move them to the country about April 15.

Jersey City, N. J. ANNA BLANTON age 11.

SAWDUST PACKING AROUND THE BEES.

My sisters, two of them, tried to keep a hive of bees through the winter. Papa had a sawmill then, and they went down and got some sawdust and put it all around the hive and covered it up, and they kept them through the winter, and in the summer

papa sold the bees. One winter day my sister and I went out where the bees were, and they were on the ground, frozen, and we took them into the house and laid them on the stove-hearth. After a while the house was just full of bees, and we opened the door and let them out, and they went back to the hive again.

NANNIE MCCRORY, age 11.

Marysville, Ohio.

The bees went back if they did not get chilled before they reached the hive.

A MOUSE IN A BEE-HIVE, AND WHAT THE BEES DID WITH HIM.

When pa set his bees out of the cellar, there was a mouse that had a nest in the mat on top of the hive. Pa tried to catch it, but it ran down in the hive. Pa said that they would make it hot for him in there. Pa waited a little while, and we went back to the hive and found the mouse in his nest almost dead. Pretty soon he died, and I picked 16 stings out of his skin. Our bees are in a fine condition. We put 60 swarms in the cellar last fall, and they all wintered well except four, whose queens died.

GEORGE W. RICE, age 12.

Boscobel, Wis., May 19, 1889.

HOW PAPA WINTERED HIS BEES.

Pa takes GLEANINGS and has the A B C. He has 40 colonies of bees, which wintered nicely. He wintered five in chaff hives on summer stands, and 35 in the cellar. He has a tile pipe put in the ground 7 ft. deep, which goes out to the road about 100 ft. This brings in the pure air. Then he has a pipe that runs from the bee-cellar to the stovepipe. On the end he has a large tin, shaped like a funnel. This draws all the impure air up the pipe, and through the stovepipe outdoors. The bees that were left on summer stands began bringing pollen from skunk-cabbage, April 7th. This was the first that we have noticed.

ADDIE FLANDERS, age 9.

Boston, Ont.

THE TARANTULA, AND THE EFFECT OF ITS BITE.

Mr. T. G. Ashmead, in March 15th GLEANINGS, is quite right about tarantula nests. There are lots here. We have a little black and white velvety spider that lives a good deal in houses and buildings. They jump and bite. One bit me on the finger the other day, and my finger, thumb, and wrist swelled up in about half an hour. It did not hurt much at first, but got very painful, and hurt me all up my arm. I have been having it doctored for two weeks, and now it is getting better. It broke and discharged a good deal. We have a hive that swarmed twice, and went back. I was glad to see papa's letter in the last GLEANINGS. I would tell you how he got swindled by a New York firm, only you have so much to attend to. All the swarms we have had this year seem to be wasting a good deal of wax. The ground is white outside with the little flakes.

Lytle, Tex., Apr. 23, 1889. WALTER HAILES.

"JUMP OFF, JOE," ETC.

We came from Nebraska. There is hardly any thing there but wide prairies; but in Oregon there are lots of things to write about. There is a large creek called "Jump Off, Joe." It flows through a corner of papa's farm. It is very pretty, there are so many rapids in it. On the other side of it the bank is thirty or forty feet high, straight up and down. From the top of the bank, Red Mountain begins. People say, that in the summer a great many rattlesnakes come out of the ground.



There are many kinds of flowers here. One kind is called "kitten-ears." There are three leaves in the flower, shaped like a kitten's ear. They are covered with little hairs inside. It is a little pink. There are other flowers, called bird-bills. The head and bill are found in the flower. The head is purple, leaves thrown over, and the bill is black and yellow.

JESSIE B. PADDOCK, age 13.

Lucky Queen, Ore., May 5, 1889.

#### HOW TO GET GRANULATED HONEY FROM THE COMB.

Our bees gathered in a nice lot of honey last summer, but it granulated in the comb so badly that pa could not extract much of it, so he put it in a pan and melted it on the stove. He lets it cool, and, as the wax rises, he skims it off and then strains it through a cloth. It is almost as good as extracted honey. As it is so plentiful, in some cases we use it in place of sugar. We use it in sweetening apple-butter, in making sweet pickle for plums, and baking cake. I will give you a recipe for the cake:

2 cupfuls of honey, 2 cupfuls of buttermilk,  $\frac{3}{4}$  cup butter, 1 tablespoonful soda, 3 eggs, 5 cupfuls of flour. Flavor with ground cloves. This will make two good-sized cakes.

CLARA M. STREBY.

Paw Paw, W. Va.

#### ABSCONDING WITHOUT A QUEEN.

Mamma had a swarm of bees go off and leave their queen last summer. They got the swarming fever, and swarmed out two times; then she killed the queen and gave them a new one just at night. They accepted her, and on the next day swarmed two times. She then caged the queen, putting on the tin slide so that they could not gnaw her out. The next day they swarmed out and went off, and left the queen in the hive in the cage. We think this proves clearly that it is the bees that get the fever, not the queen. It also proves that bees will go off and leave the queen.

BIRDIE RUSSELL, age 10.

Beatrice, Neb., Apr. 21, 1889.

Your letter does not necessarily prove that the bees are the first to get the notion of swarming, but it goes a long way to prove that a swarm may abscond without a queen. However, unless we can get more testimony to the same effect, we should incline to the opinion that the bees had some sort of a queen with them—very likely a virgin, whose presence in the hive your mother did not know of.

#### A TALK TO THE LITTLE FOLKS.

BORROWING TROUBLE; CLIMBING MOUNTAINS, ETC.

**D**EAR CHILDREN:—I know a little boy who always thinks you mean him when you say any thing was not done just right. Do you know any one like that? He sometimes begins to cry and fret, and gets a scolding, when no one had thought about him when the first remark was made. That is caused by self-consciousness, or thinking so much about himself. Don't you think he must have a queer time? Certainly it is not altogether a happy one. Real troubles are hard to bear; but imaginary ones are horrid. Now, if any one is thinking, "Why, I believe Aunt Katie means me, and I am not going to like her any more," just stop a moment and say to yourself, "What is she saying this for—so that *she*

will be any better off, or is it me she wants to have a 'gooder' time when I am among folks? I know I have got so that I can not go anywhere without getting mad at some one for talking about me, or commenting on the clothes I wear, or something—or at least I think they are doing it, if I catch them looking at me. I guess she does mean me."

Not long ago a young girl who had made herself quite a favorite among her schoolmates saw the boys and girls whispering together and looking at her. She asked them what they were talking about; but they only laughed, and would not answer her. At noon time she saw them whispering together in little groups, and she would run up and try to hear what they said; but they would stop talking when she came near. Instead of paying no attention, and being happy some other way, she began to pout, and finally said to herself, "I won't come to this school any longer. They are a mean, hateful set."

At night she went home feeling very unhappy. Her mother had been told that the young folks were going to surprise her daughter that evening, so she advised her to go to town with her father and she would feel better when she got back. While she was gone her schoolmates came, bringing cake, candy, and oranges. They all hid in one of the rooms; and when Jessie got back they rushed out into the room where she was. She was so astonished that they all laughed, and told her that they hoped she would not be mad at their whispering together any more. She begged their pardon, and I think it taught her quite a lesson.

Now, after our little talk, suppose you all go with us for a grand picnic. About ten miles, straight up the valley, is a range of mountains, and away up on one of them is a lake called Zaca Lake. We should like to go and camp awhile, but we have not time now, so we will just take our lunch along, for it will be about noon when we get to where we shall have to leave the horses, or at least the wagon.

"Where are John and Ernest?"

"Oh! they have got so impatient they have started on. Are we all ready?"

"Yes."

Then away we go up the main road about two miles, and now we take this road to the left. How beautiful every thing looks! The hills are blooming with flowers, and the wheat and barley in the valley are growing finely. It is February, and the air is cool this morning; but now the sun is peeping up over that hill in front of us, and we shall soon be warm. See how lovely the hanging moss looks on those white-oak trees. It looks as if it were threaded with beads. The drops of dew sparkling in the sun make it look that way. Here we are, four miles from home, and we can not see those impatient boys yet.

"Oh, yes! I see them, mamma," shouts Lewis. "There they are, at that gate."

Sure enough, and there are the two dogs along with them.

"Well, boys, I hope you are ready to ride with us now."

"It was so cool we enjoyed the walk very much; but it is warm now."

"Isn't it a lovely morning?" says our neighbor John; and into the wagon they climb.

"Let us see; we must turn to the right pretty soon. There is where Mr. Edgar used to live. Why, they have got the road fenced on each side since I

was here last. Doesn't it make a pretty lane? Such lovely feed for the campers' horses! Yes, and here at this lone windmill is where several have camped. We all must have a drink from the large tank, and the horses can be watered at the trough. No, there is no gate. You must hand it to papa through the wire fence. How refreshing a good draught of water is! Even the baby drinks, and smacks her lips with pleasure."

Away we go again, getting nearer and nearer those majestic mountains. We have been coming up faster than we realized, for they do not look so very high now. Yes, we must be about 1000 feet above our house. We are now about ten miles from home. What a lot of lovely land, to be used just for cattle! It seems a pity that it can not be divided up and made into small farms! Well, it will some time, may be, but not in our day. There comes a buggy with two men in. Let us ask where the road turns off from this to go to the lake. The first gate to the left, at the foot of the hill. Here it is, and, unlocked. Isn't that good? Mr. C. told us we might find it locked, and then we should have to give up our visit to the lake. But we are lucky this morning.

"I knew we should be," says John, "for we have found so many horse-shoes; that means luck, you know."

"Whew! I wish they had not plowed into this road, as it makes it so hard for the horses."

"May be this is not the road."

"I will run on ahead and see," says Ernest.

Soon we see a traveled road on the other side of the fence, and we pass through another gate and enter the woodlands at the foot of the peak where the lake is. Isn't this picturesque? Sylvan glades, browsing cattle, babbling streams, and singing birds. Can we cross on that frail-looking bridge? Oh, yes! with care. Well, I am glad we are over that. I haven't drawn a good breath for two minutes. Dexter, the colt, was quiet, and went along as well as Bess. A good gentle team is a pleasure when we are going over bad places. We are climbing up, and we are nearing the camp, I should think.

"Well, I am agreeably surprised," says one.

"How?"

"Why, you know the mountains look so rough and rugged from our place; but see how pretty they are, now we are upon them. Flowers, trees, green shrubs, and wild oats cover the steep mountain-sides, and lovely glades tempt us to camp on every side; and, see, we are so high up that the pine-trees begin to be scattered among the others. The native pines rarely grow on the hills. They grow only on mountains where snow falls during the winter months. How proud they look! How straight and trim! They seem to point above to Him who made us all. Oh, what a pretty camp! I guess this is as far as we can go with the team, so we will jump out and you older boys help unharness the horses, and the little boys can pick up sticks for the camp-fire. I think that must be water from Zaca Lake in that stream, it is so clear and soft. There is the fire; now put on the sauce-pan full of water, and we shall soon have some coffee. Then while the horses are cropping the tender herbage we will eat our lunch. Why, have you got done already?" we say to the big ones.

"Yes, for the present. We want to see that wonderful lake we have heard so much about."

"Shout when you get up part way, if you think mamma could climb up there."

We soon hear a shout; and as we have satisfied our appetite we put away the things, give the horses some barley, and, with papa carrying the baby, away we go.

"Come on, little ones; not too fast at a time; it is quite a long walk up hill, so stop and breathe a spell. I hope you all have old shoes on, for this rock wears the leather very fast. There, now, we have got over the worst of the road. See what a nice path has been made in this black earth. What queer kinds of bushes, and such lovely ferns! We will get some when we return. The manzanita, with its smooth red bark and the gray-green leaves and white blossoms, would be quite an ornament in a front yard. Oh! pine nuts! See, the boys are getting nuts from those large cones. Sure enough, the big boys have found a lot. They are rather dry, but quite sweet. Where is the lake? Oh! just around there, and they point to the right. You won't see it till you get to it," so we all jog along, looking for the first glimpse with one eye while we are admiring the pine-trees, which now predominate, with the others. "Just see that sharp point of mountain. The trees look as though they would slip off, it is so very straight up. The lake is at the foot of that peak. Oh! there is a log house, and here is the lake."

A hush falls upon the whole party as we stand and see the strange view before us. A small body of water is seen, with rushes and other water-weeds fringing the edge, and sharp mountain-peaks all around it but just where we stand; and over all, that strange awe-inspiring hush that pervades all forests and mountains. I like to enter those vast solitudes sometimes; but the pioneer spirit is not strong enough within me to wish to linger long so far from human habitations. There have been two log huts built by campers, but they only enhance the lonely feeling, to me. They look very forlorn. We sit down and impress the picture before us upon our mind, and listen to the cry of the loon, the only living thing besides ourselves to be seen. The sun has begun to go down the mountain, and we must go too; so with one last look we return down the path we came, wishing we could go down from the other side of the lake, but that would make our journey 20 miles further, so down we go, plucking flowers, ferns, branches, young pine-trees, and the sweet laurel leaves. Now we slip and slide when we get to the shady place, and how hungry we all are now we have got back to camp! We hastily eat the remainder of our lunch, and now we are trotting along on our homeward way. As we cross the creek the last time, we will have the big boys fill these two bottles with water, and we can give our friends at home some of the famed waters, even if they could not enjoy the picnic with us. The sun is down, but we shall soon be at home. How pretty the moon looks, peeping at us through the trees! Here we are. Thank you for going with us.

Los Alamos, Cal.

AUNT KATIE HILTON.

And, good friend Aunt Katie, we thank you also for taking us along. Your description of mountains and mountain travel is very vivid and lifelike, and a dozen things remind me of that wonderful trip of mine. If I am correct, the Californians are more in the habit of going out picnicking, and taking such strolls, than we are here. Perhaps it is a lesson we ought to learn.



## OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

### WET WEATHER.

**W**E have been having two or three weeks of bad rainy weather. Locust, raspberries, and other kinds of bloom have been out in great profusion, but the bees were unable to make use of them. White clover is out in unusual abundance; and although it has been in blossom for a week, the bees have been forbidden by dame Nature to visit it. To-day, June 10, the weather promises to be favorable; the sun is shining brightly, and the weather is warm. Yesterday, between the light warm showers, in spite of the heavy wind, the bees were out doing their level best. There is still strong wind. No honey has been gathered to any appreciable extent so far. In fact, we have been

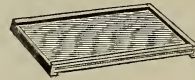
### OBLIGED TO FEED

for the last two weeks. I believe I never saw colonies use up stores as fast as ours have done for a few days. One or two stocks that had been recently fed, starved in spite of us. Starvation was not due to neglect, but due, rather, to the inferior quality of the food. Having some old soft maple sugar in cakes, much of it unsalable, we made it into a thin syrup. This we fed out entirely. One or two of the colonies, after feeding, showed signs of dysentery. After feeding this stuff I came to the conclusion that granulated sugar, even at its present high price, is just about as cheap as the inferior sweet, because it is better and goes farther. Latterly we have been feeding granulated syrup, and we have since noticed none of the bad results.

A large majority of our colonies, I feel sure, would have starved had we not fed them. It is rather discouraging to feed when white clover, raspberries, and locust are successively in bloom in such profusion, and yet the bees are not able to get the sweets. The bountiful rains we have been having, I am in hopes will more than make up for lost time. As we feed only to keep brood-rearing going steadily, we feed small quantities daily, and for this we use butter-dishes. For stimulating feed, I do not know of any thing we like better; even throwing out the item of cheapness, I am emphatically in favor of the butter-dishes. When we moved the colonies down into the basswood orchard, in the Dovetailed hive, we had a great many wire-cloth screens. These screens are simply a rim  $1\frac{1}{2}$  inches deep, covered with wire cloth, the rim made the exact size of the Dovetailed body. Well, we placed two butter-dishes on top of the brood-frames of each hive, and placed one of the wire-cloth screens over the whole. Through the wire cloth we poured the feed, put on the regular cover, and every thing was done. To give the next feed, all we had to do was to raise the cover and pour the feed through the wire cloth. This arrangement proved to be exceedingly simple and very satisfactory.

### FEEDING WITHOUT A FEEDER.

We ran out of butter-dishes and wire screens. I told our Mr. Spafford to pour about  $1\frac{1}{2}$  or 2 pounds of syrup all over the brood-combs and among the bees; if the colony were weaker, to give them a proportionate amount in this way. We tried this on about a dozen colonies. In about twenty minutes more we examined those so fed, and found that they were all nice and dry. Once or twice I feared they might not be able to recover from such a sousing of syrup. This dose was repeated a number of times, and the bees each time recovered from it. The colonies were very strong, otherwise I should have hesitated about giving them such a smearing. For feeding this way, the Dovetailed bottom-board worked very nicely. By referring to the annexed engraving,



which I gave some time ago, you will see that the bottom-board is sunk. By tilting the front end up temporarily, we found this bottom-board would make a very good feeder. In pouring the feed right over the combs, you observe that the bottom-board will take the excess, and retain it there till the bees can use it. The excess of even two or three pounds can be held in this way, and I do not know but it makes a very good feeder.

### CARNIOLANS.

Several years ago I gave a rather adverse report of these bees. Feeling that I had perhaps been a little too hard on them, I requested one of the leading breeders of these bees to send us one of his best Carniolans. He did so, and we have had them for nearly a year now. I was disposed to feel favorably impressed with them, and desired Neighbor H. to take them to one of his apiaries, and, if they proved to be a good race of bees, to make preparations to raise them in one of his apiaries, isolated, of course, from all other bees. Chancing one day to think of these Carniolans, I asked him what he thought of them. Well, he didn't "just exactly know"—his answer indicating pretty plainly that he liked the Italians better. To satisfy myself directly, I one morning hitched up Billy in the cart, and started. Neighbor H. was not in the apiary at the time, but I readily found the bees. Of course, I proceeded to open up their hive without smoker or veil. Not endeavoring to be exceedingly "rambunctious," as the boy says, I proceeded to open the hive, using ordinary caution. I had scarcely got the cover and the cushion off, than the air was filled with Carniolans, buzzing around in a to me unusual manner. They began to sting, but I held my ground. Neighbor H. then came around, and I asked him where his smoker was.

"Oh!" said he, "you don't need any smoker for those bees," and a little sarcastic smile played over his face. I had explained to him that they could be "handled without smoke." However, I insisted on the smoker, which was brought, and used

upon the bees. Instead of quieting them down it caused them to fly into the air like a little swarm. From the frames lifted out, the bees ran down, and hung in little balls, and in the hive they were running about in wild commotion. I was almost positive they were black bees; but Neighbor H. assured me with all confidence that those bees were the progeny of the very same queen I had given him to test. They resembled very much the Carniolans we had had on a former occasion, which were imported. They were pretty cross, and I got one or two quite severe stings. If I were to judge the Carniolans by this colony alone, I should say that, when they do sting, they sting with a vengeance. To tell the truth, I wanted to be favorably impressed with the Carniolans, and I do not know but I should like to be so impressed now. One quite serious objection, however, and one that has been mentioned before, is, that if there were black bees in the vicinity in which they were reared, it would be almost impossible to detect the crosses, except, perhaps, by their behavior. In fact, from what I have heard in general from the Carniolans, I should be inclined to believe that the colony above mentioned, instead of being pure, is a cross of the black bees. If such is the case, then even the breeder himself may be easily deceived. How is he to know, then, whether he has bred the race in its purity, if he depends upon mere looks? This report of the Carniolans applies only to the one colony in question. I hope further trials will give me a better impression.

#### IMPORTED ITALIANS.

Perhaps I should say right here, that Neighbor H. said he had an imported Italian colony that had got their hive crammed full of honey, when other colonies were on the verge of starvation. In fact, he intimated that she was a better queen than the Honey Queen I mentioned in last GLEANINGS. While there I requested that he would not show me the imported queen, adding that I wanted to see if I could discover the colony in question by the peculiar energy at the entrance. Not being acquainted with the apiary, I did not know where this or that queen was. We looked at a number of colonies, and finally I ventured to remark, rather cautiously, "Is that the imported queen?"

"That is the one," he said. "Now," said he, "lay your smoker down; pull it open as roughly as you please."

I did so, and every thing was perfectly quiet. I pulled out comb after comb, and there was not the slightest demonstration of any hostility on the part of the bees. Yes, it was true that there was a great deal of honey in the hive.

"Don't you sell that queen," said I. "Keep her for raising queens. A queen whose progeny is gentle and exceptionally good workers, is worth something."

Neighbor H. has already got cells under way from her.

While I was looking over the bees, we came across one other imported queen. Her bees were just as gentle, and were doing nearly as well as the first one we examined.

I told Neighbor H. that he had better keep that one too. The more I examined the apiary, the more I became convinced that the imported queens were doing the best. They were certainly the gentlest.

Some weeks ago, Mr. Spafford incidentally remarked that the colonies having imported queens were doing the best on apple-blossoms.

"Yes," I said, "I have noticed the same thing before. They are not only the gentlest bees we handle, but are just as good, and very many times a little better honey-gatherers." As I have before said in this department, I now repeat again, there is something in the climatic conditions of Italy that produces a hardy, gentle, and industrious race of bees. The bees of the imported Italian colonies are, as a rule, leather-colored. I have also noticed that the very light Italians—those that looked real pretty, such as bee-keepers like to exhibit at fairs and elsewhere, *are not the bees for real business.*

#### THAT HONEY QUEEN.

That "honey queen" in the basswood orchard, mentioned in our last issue, is still doing well. Although very yellow herself, her bees are quite dark, leather-colored Italians. While the other colonies have required constant feeding, these bees have kept their brood-nest pretty well supplied with natural stores; but unlike the imported colonies referred to, they are pretty cross. The first time I opened them up and hauled them over, I got a good severe stinging, and I was heartily glad when I closed them up again. By the use of plenty of smoke I find since that I can handle them quite easily, but they will not tolerate even then very many unnecessary jars.

#### "HAS HE AN AX TO GRIND?"

As I read down this report, I have been wondering whether some good brother might not add, "Has he an ax to grind?" Well, I admit that it looks a little so; but I have tried to be candid, irrespective of the aforesaid "ax." If I can not state a thing honestly, for fear that somebody will say that "he has got an ax to grind," then I am in a poor plight indeed. If the Carniolans are a desirable race (and they may prove to be such), then we can sell them just as well as the imported Italians.

#### LATER.

June 11.—Since yesterday I notice that the bees are beginning to make their combs bulge a little, and white-clover honey is at last coming in. The weaker colonies do not show very much new nectar. The stronger colonies have gathered enough to fill their brood-nest to perhaps two-thirds or three-fourths of their capacity. It is a little cooler to-day, and bees are not flying to the extent they were yesterday. Rain and cloudy weather seems to be the order of the day, with a little sprinkling of sunshine now and then. If this order were reversed, we should have a good flow of honey, I think. All the conditions are supplied except sunshine and hot weather.

This afternoon the sky has cleared up and it is warmer. We hope for the best.



## SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

### THE KUMERLE LIMA BEAN, AND GETTING TWO CROPS IN ONE SEASON.

**Y**OU asked such of your readers as can raise lima beans *during the winter* to write to you. I have seen but one winter in 18 wherein they could not be raised here, and they have been repeatedly raised for home use. They live two or three years, and with but little care, and make, on suitable soil, even better yields than northern grown seed. The seewee, planted at the foot of old stumps, grows readily and with no care after it begins to run, and bears enormously. Early in October is the best time for planting here, as the weather is moderately cool then, and there is ample time to grow before the coldest weather comes. I could undertake  $\frac{1}{4}$  acre or less.

Palma Sola, Fla., May 26, 1889.

J. F. SIKES.

Well, I declare, friend S., we have got it after all, haven't we? But what you say about lima beans living two or three years is to me astounding. I saw pumpkin and squash vines in California that had been growing for several years; also tomatoes; but in some way I had got it into my head that a bean, after it had borne its crop and matured its seed, had got to die. Well, we shall have to live and learn. As soon as the Kumerle lima beans are ripe enough to grow, I will send you some seed, but I hardly think I shall have enough to spare for a quarter of an acre. If you plant seed in October, as you state, what time would they ripen? Unless they would be ripe enough to plant by June 1 in our locality, they would not be of much use. Last season we planted a long row of the kidney wax beans. The seed was gathered just as soon as the first ones were apparently full sized. But only a bean or two came up in that long row: these were feeble, and amounted to nothing. From this I infer that the seed must become perfectly ripe and dry before it can be planted to grow again. I do not quite understand it, however, for our lima beans, which we gather green, and shell for the wagon, have, during very warm weather, heated in the little baskets so as to send out sprouts half an inch long, and that in one night. Now, I supposed that of course these lima beans, if planted in the ground, would grow. But my experiment seems to indicate that it is a mistake. It may be, however, that I did not let the beans get ripe enough. One thing that makes me think so is that the beans that were planted in this long row were perfectly white, and looked like ordinary kidney beans. On the strength of this I said in the price list that kidney wax beans were white, not remembering at the time that the small packet I planted to get my first ones started had a colored spot just about the eye. My lima beans, however, will be ripe and dry long before October. So, friend S., you and I are going to test the matter of getting two crops of lima beans in one year. If you succeed, the Kumerle lima bean *won't* be worth its weight in gold in 1890.

### OUR PATCH OF JESSIE STRAWBERRIES.

Last fall, after our Early Ohio potatoes were dug, I had the ground cultivated very smooth and fine, and then covered with as much stable manure as we could well plow under. It was then plowed, harrowed, and marked out with our disk furrower, leaving wide deep furrows like paths. These paths were three feet wide from center to center. While the furrower was going over the ground, a wooden tooth was fastened temporarily so as to make a shallow groove in the center of each one of the raised beds. My idea was, that if strawberries were planted in the center of these raised beds they would not suffer so much from frost, because the paths or furrows would let off all the surplus water during winter. I think that strawberries, like wheat, are injured in winter because of a surplus of water standing on the ground. Remember, this ground is already well underdrained, but our clay soil is so slow in letting the water pass away, that I felt sure the above arrangement would help the matter of having the plants thrown out by the frost. Well, the mild winter may have had something to do with it; but as it was, not a plant in the whole 3000 was injured in winter. There are nine rows of the berries. Three of them are Sharpless, and the others Jessie. Strong plants were selected, and they were put in in the fall, with our transplanting-tubes; all runners being nipped, they of course made a good growth, and went down into the rich ground very securely. Not a plant died in transplanting, that I know of. You will remember that, in our list of plants, I have mentioned the Jessie as holding itself up out of the dirt. Well, we were greatly puzzled because this year the Jessie did nothing of the kind. Perhaps the plant might be excused for omitting this part of the programme when I tell you that the berries are, many of them, more like peaches than strawberries, so far as size is concerned. Another thing, we have heretofore supposed that the Jessie was a regular-shaped berry. This year they are broad, wedge-shaped, double, and in almost every respect just about like the Sharpless; in fact, everybody calls them the Sharpless, only they were ripe before a single one of the Sharpless had got its growth. They are so luscious that the robins, the hens — yes, even the rats, have gone to sampling them. We do not have many rats, but there were enough to make a start on one end of the Jessie berries. Besides the above enemies, the small boys of the establishment got to picking them, and eating them green by the pocketful before I knew it. Just as soon as there is a blush of red on one side of the berry they are very good to eat. My cousin, D. E. Fenn, of Tallmadge, O., has just paid us a visit, and he is a man pretty well acquainted with horticulture in all its branches, especially strawberries. He pronounced my patch of Jessies the finest thing in the line of a strawberry that he had ever seen in his life. Now, he is a comparatively near neighbor to friend Terry, and to Matthew Crawford besides. We are still picking off the runners and

keeping out the weeds, and that patch of strawberries is going to make a show before winter comes, I tell you.

We have Bubach and Haverland also, fruiting. They are much like the Jessie, only the Bubach is still larger both in fruit and foliage. In fact, it is immense all around. You know the Bubach is said to be the only successful rival of the Jessie. I expect to sell plants this fall. The Haverland has a better shape, but it is hardly as large. Both are exceedingly strong growers. I have just got four of the plants of the new Miami, introduced by our old friend J. D. Kruschke, one of the bee-fraternity, and a contributor to GLEANINGS some years ago. The Miami plants were very small, feeble ones, received late in the fall. They are now making an excellent growth, and the berries differ from any thing else I have seen, by ripening all over at once. There is not any red side where the berry is exposed to the sun. It is a beautiful red on all sides at once.

#### ALASKA PEAS.

We have succeeded in having a fine crop of peas by the first of June, when nobody else has any anywhere about. For several years I have been planting peas in February and March, but they did not mature any earlier than those planted a month later. I finally decided that some poorer ground might give us peas sooner. Well, the poorest piece of ground we have on our plantation is a little knoll facing the south. It looks and acts as if the surplus soil had been removed for some purpose years ago. In fact, it would not even raise grass; but the dry clay was visible the year round. I thought this would be poor enough for early peas, so I turned under some old well-rotted manure, applying it in the fall. This spring, before the frost was out of the ground, and as soon as the clay was dried out hard enough so it would rake up on the surface, I put in five rows of peas. As I supposed they would make only a feeble growth, they were planted only 18 inches apart. They came up as I expected, very quickly, on account of the sunny spot they occupied, sloping toward the south. When they were six inches high, I purchased five rolls of poultry-netting, with  $1\frac{1}{2}$ -inch mesh, and only one foot wide. A stake every 25 feet held the netting just so the peas could reach the lower selvage edge. They "caught on" very soon, and my little patch of peas has been all the spring a pleasant thing to visitors. By the way, we can now furnish a strip of poultry-netting of the above dimensions, 150 feet long, for only 50 cents. Can you get any thing cheaper for early peas? We have picked about three bushels from this little patch, and there will certainly be six or seven bushels more. What do you think of it? Ten bushels of peas from a piece of ground about 10 feet wide and 150 feet long! The first of them sold for \$2.00 per bushel; but now we get only 40 cents a peck. As soon as the peas are cleared off I am going to try the early strawberries on this poor, hard, clay soil. They probably will not make very much growth, but I suppose they will bear

berries quite a little ahead of our highly manured plots.

## MYSELF AND MY NEIGHBORS.

Incline your ear, and come unto me: hear, and your soul shall live; and I will make an everlasting covenant with you, even the sure mercies of David. —ISA. 55:3.

ONE Sunday morning our pastor changed places with a brother-minister in an adjoining town. I think I have before told you that I have a particular love for preachers. I believe I love all humanity; I love my fellow-men. I love to be with them, and I especially enjoy getting acquainted; but if there is any one class of people I love particularly it is God's ministering servants. I know they are criticised and found fault with; but never, since my conversion, has it ever been my lot to find a minister of the gospel who did not have a good deal that was lovable about him. Some of them have queer, odd ways, just as you and I have, and it may take a little charity for a man to get right well acquainted with them; but the single fact alone, that they have given themselves, heart and soul, to the cause of Christ, has never failed to draw me toward them. Well, when this new minister stepped into the pulpit I of course began to get acquainted. In his opening benediction I got a good deal acquainted. It was different from any opening service I had ever heard. I decided at once that the man was original. It made me feel as if we were a great family of brothers and sisters having family worship at home, around our own fireside. You may be surprised to have me say that I can not remember his text; and as our good brother has not furnished it in the following paper, I have had to substitute one of my own.

There were several points in the sermon, that interested me so particularly that I begged him to let me have that part of it; but although he had some written manuscript before him, he told me that the part I wanted had never been given before, and he was afraid he should never be able to give it again just as he did that morning. You see from this statement how much help it is to a speaker, and especially to a preacher, to have a good-sized, intelligent, and appreciative audience. He, however, promised to do the best he could, and here it is. Now, he wrote one page specially to A. I. Root, that he did not intend to have put in print; but I am going to take the liberty of printing it with the rest, just because it helps you so much to get acquainted with him. It is something a little aside from the sermon, and sounds like a few kind words spoken after he had got down among the audience—or, if you choose, just as he was shaking hands with A. I. Root and family. Now, I want to tell you, dear friends, that A. I. Root and family—yes, clear down to six-year-old Huber—are found, as a rule, occupying a seat close by the pulpit. I do not know how it comes that we always sit there; in fact, I do know that my good wife



has protested a great many times because I insisted on getting forward in such a conspicuous place. But there are several reasons why I like to be right there. In the first place, I like to be near the speaker, especially if, as I have said, he is also a preacher. And right at the end of the seat where I sit is a door that can be opened without making much disturbance when there is a lack of fresh air. It gets opened, too, I want to tell you, even if some of the elderly friends do look as cross as they dare look at A. I. Root. Now, then, friends, I think we are all ready to let Bro. Gammell talk to us.

*Dear Mr. Root:*—I hope you will find this inclosed copy about what you expected it would be. I send it along, with the prayer following it that, if you print it, it may do good to some soul waiting for some such message. You will remember to send me a copy or two of the magazine containing it. We have been reading from your books, and probably no family in the land got so suddenly acquainted with A. I. Root and his travels as we did in one day—Monday. Your account of that Sunday afternoon at Manitou reads like a chapter out of Augustine's Confessions. We enjoyed journeying with you.

Yours in Christ, S. D. GAMMELL.

Wellington, O., May 2, 1889.

#### A HUMAN INSTINCT.

*An extract from an address to some bee-people at Medina, O., April 28, 1889.*

You say the bee has instincts, but have not men instincts also? What do you call that frequent and most natural resort to prayer in presence of a momentous crisis in the personal experience, if it be not an instinct of the soul?

Blind Homer declared, a thousand years before Christ, "All men have need of prayer." I agree with him when I hear that the surgeon, about to perform an operation that might be fatal, laid aside his knife for a moment and fell on his knees with an appeal to almighty Wisdom and Goodness that his hand might be steady and his stroke sure when a fellow-being's life was involved.

My agnostic friend, would you object if your surgeon should keep you waiting a moment before some dangerous service you had asked of him, that he might pray? Would you not hope that his mind and soul would at least recover poise and composure, and his success be more certain? As for me, that sort of physician would commend himself at once.

So, again, I agree with that old heathen poet I have quoted, when I read of the painter, Fra Angelico, how he would not put brush to canvas, nor mix the oils for his daily task, until he had prayed that his soaring genius might be visited with an inspiration from the Source of all beauty and splendor. No wonder that Ruskin can say of him, "By purity of life, habitual elevation of thought, and natural sweetness of disposition, he was enabled to express the sacred affections upon the human countenance as no one ever did before or since." Is it too much to claim that here we have an illustration of cause and effect, that this painter's success was in part dependent on his praying?

Once more, did not the astronomer Kepler respond to this instinct, when, in the midst of his discovery of celestial laws, filled with wonder and admiration at his vision of stellar harmonies, he cried out: "I

thank thee, O God, that thou hast permitted me to think thine own thoughts after thee"? And you and I, good friends, if we are true to our better selves, standing at the star-gazer's side and listening while he describes to us some raging cyclone in the sun, or a new volcano reddening the planet Jupiter's sky, or some other heavenly wonder, if we are true to our natural instincts we also shall thank God that he has taught men to use their lenses and tubes with such skill that they can see what he is doing in the star-depths, and think his thoughts after him.

Suppose further, that it is only a tradition that Washington was heard praying by himself in the wintry forest at Valley Forge in a strait of generalship, and that Stonewall Jackson, leading a charge, himself in the saddle, flung up his arms in momentary prayer to God; even if these be myths they reflect the thought of many minds, and the common expectation that such an act is becoming to the time and place. It is the general acquiescence in the blind bard's dictum, "All men have need of prayer."

Again, it is generally supposed that the times of Franklin and Jefferson and Paine were conspicuous for their skeptical tendencies. What, then, shall we say of the fact that the first act of the Continental Congress which met at Philadelphia, Sept. 6, 1774, was the adoption of a resolution that the Rev. Mr. Duché be desired to open Congress with prayer at Carpenter's Hall at nine o'clock? In this stress of statesmanship, men had need of prayer. Men are driven to it as a last and only resort, as shipwrecked sailors are driven to take refuge in the rigging and topmasts of their sinking ship. I was reminded of this the other evening when I heard what I will call "The Surgeon's Story." He was in charge of an army hospital in the late war, and received one day a wounded soldier, a mere boy, shot nearly to death. Day after day the doctor sought to reveal his dangerous condition to the lad; but his light laughing spirits would not take the plain hints and intimations of his medical attendant; and yet he was slowly, surely dying. One morning the doctor said, "My boy, I've tried to tell you that you could not survive this wound; that you must certainly die; but you wouldn't believe me; now I tell you plainly, that before noon you will be dead."

Again that stolid stare, that imperturbable spirit, that unresponsive mind, and the surgeon went away. But in an hour he was hastily called, and the now conscious and aroused boy broke out, "O surgeon! I know what you mean now. I must die; but what shall I do? I'm not prepared to die. O doctor! I can't die. My father was a minister, and my mother taught me to pray; but I've been a wild, bad boy. O surgeon! what shall I do?" And the good surgeon felt himself but poorly qualified, in his little knowledge of Christ, to give this dying boy an adequate reply, and could only stammer, with tear-filled eyes, "Your mother's religion, my boy; your mother's religion." What else have you to offer, my agnostic friend? What else but this? It is the natural cry of the soul in mighty emergencies, face to face with awful duties, face to face with the impenetrable mystery of death and eternity. It is the cry of the soul lifted up in prayer—the prayer learned, it may be, at mother's knee—to the eternal Goodness.

The bee, by instinct, knows where to find its honey and how to build its cell. Shall not the imperial

soul know where to find its joy, and how to build for itself an eternal mansion, abiding instant in prayer, following the supremest instinct of the god-like soul?

You are right, brother Gammell; I am sure you are right. When God endowed the bee and the lower forms of animal life with unerring instinct, he surely did not forget man, who stands at the very head of the animated universe; and he surely does not leave him in darkness, and alone, when these momentous crises come, as they do most surely come to us all, sooner or later.

Yea, though I walk through the valley of the shadow of death, I will fear no evil; for thou art with me; thy rod and thy staff they comfort me. —PSALM 23: 4.

Thousands of times have I been comforted, and made to feel safe and at ease—yes, thousands of times has he helped me to be cool and collected when important issues were at stake. Dear brother, since you gave us that sermon, and since the foregoing was penned, one of the greatest calamities has come to us as a people, that ever tried men's souls since the settlement of America. Over ten thousand people were hurried to sudden death within one short hour. No doubt at such a time there was much praying; in fact, we have many records of the prayers that were offered up. And some of the newspapers have been in such haste to tear down the Christian religion that they have boldly declared that God did not hear or answer in this time of trouble. One newspaper even seems to delight in telling of certain people who discarded their Bibles, and refused to hear a word from their pastors, because God permitted such a thing to happen. Perhaps I am touching upon a subject too deep for me. Very likely I can not tell how I should behave myself under a similar trial; but, dear friends, if there be any among you who have been troubled by these newspaper accounts, please remember that God has never promised to exempt even his devoted followers from sickness and suffering, from accident and death. He has, however, promised to give us grace to meet all these things with courage and calmness and trust. Jesus breathed, with his dying breath, "Father, into thy hands I commend my spirit." Before the ordeal came, he did once pray that the cup might pass from him; but after he had risen above this human weakness, he met suffering and death in such a way as may well be an example for all mankind. Should I be overtaken by any such calamity, I hope and pray that I may have grace to pray as did the Son of God. When the question first came to me, I at once decided that those who prayed simply for longer life (or even that a loved member of their household might be spared a fate that seemed to have come to all round about them), had a wrong conception of God's promises; and in thinking over the matter, and mentally going over the Scriptures, the answer seemed to come to me, that in no place in the Bible have we the assurance that our lives shall be prolonged, in answer to prayer. The sun shines on the just and on the unjust; and sickness and accident

and death also come to the just and to the unjust. It is our duty to save our lives, where we can consistently, for the good of others. It is our duty to be careful of human life; but all of our prayers should take in the thought, whether expressed in words or not, "Nevertheless, not my will, but thine, be done." He who starts out to be a follower of Christ Jesus must not expect that, because he does so, he is to be exempt from the ills of this life; in fact, it does sometimes seem as if Christians were called upon to suffer and bear even *more* than the people of the world. The Ashtabula disaster of years ago seemed to indicate very plainly that God does not propose to save even his *devoted* followers from the effects of a terrible accident. In the case before us it seems to have been rather the acts of man than the acts of God; but when we come to earthquakes, cyclones, cloud-bursts, and the like, we are forced to conclude that God has some very wise and good purpose in permitting these sad things. It may be that we need to be reminded very often of the uncertainty of life, and of the fact that it is futile for us to propose putting off the time of reform until death shall be near. I do believe that it is well for us to know that death may come at any hour, unheralded and without warning. Our whole nation once prayed that the life of a president might be spared. It seemed to us that it *must be* for the best that he should be spared. His life was not spared, however, and I feel certain that none but a poor *mistaken* Christian lost faith in God simply because our president died. Suppose, by way of illustration, we should quarrel with the great Creator because his plans were not in accordance with our poor weak human judgment. If we should decide that this world or this universe is a poor one, and badly managed, how much can we do toward finding a better one? Jesus once asked his poor humble followers if they too were going to be offended, and turn away from him. Peter, by a sort of instinct, such as our brother has mentioned, rushed to the truth of the matter at once when he said, "Lord, to whom shall we go? thou hast the words of eternal life." Now, then, if we shut up or throw away our Bibles, what then? Where shall we find comfort? Is there any thing else that will sustain and cheer us in the dying hour? We are told that a mother, at the last crisis, put her children, one by one, on floating fragments — fragments that would buoy them up, probably, but would not sustain her own weight; then with a prayer to God, and with encouraging words to the children that God would take care of them in the flood and in the darkness, she set them adrift. They were never found alive. Did the poor, almost distracted mother make a mistake in commending them to Him who holdeth the winds and the waves in the hollow of his hand, and who heareth even the ravens when they cry? She might have made a mistake in assuring them that they would be spared from death, but surely not in trusting even her little four-year-old girl to the tender mercies of the Father above, when the little one



called back in the darkness, "Mamma, I am not afraid." The cold corpse of her darling was afterward found, and skeptics have tried to make it appear that the poor mother was wrong. But who shall say that God did not take that little one who, with childish lips, said she was not afraid, into his care and keeping, without a pang? We are not told in God's holy word that we shall be spared from death; but we are told that

Jesus can make a dying-bed  
Feel soft as downy pillows are.

As we go to press, I feel to rejoice that our own State of Ohio has done nobly for the relief of the sufferers; and I am glad to say that a subscription was started in our own little town of Medina, even on the Sabbath day, and that the money subscribed went as speedily to the sick and suffering as our modern methods of swift travel could carry it. Jesus told us, that "in the world ye shall have tribulation;" but he also says, "I have overcome the world."

### THE VAN DEUSEN METAL CORNER.

FRAMES AT FIXED DISTANCES; REVERSIBLE FRAMES, ETC.

**E**DITOR OF GLEANINGS:—It is with pleasure that I answer your inquiries regarding the VanDeusen metal-cornered frame. Eight or nine years ago I read Quinby's "New Bee-Keeping," and became enthusiastic over the merits of the closed-end frame. I gave it a trial, but I never could handle it without killing a good many bees. My bees at that time were blacks and low-grade hybrids, with the two worst traits of such bees fully developed—that of hanging in great bunches on the corners of the frames when lifted from the hive, and of being very free with their stings when pinched a little. With Italians I presume the crushing of bees with such frames is reduced to a minimum, for they do not get in the way as the blacks do. With hooks on all four corners, the Quinby closed-end is certainly an almost perfect reversible frame, if we lay aside the objections mentioned above. Not liking the loose case I reduced the depth of the frames to seven inches and dropped them into an ordinary hive, supporting them on hoop-iron strips nailed along the lower edge of the ends of the hive. Notwithstanding these frames were wedged from the side, the propolis soon made them difficult to handle, and they are certainly as perfect bee-killers as one could possibly invent; for when a frame is pushed down, as described by Mr. Heddon on page 390 of GLEANINGS, May 15, 1889, it is impossible to avoid crushing bees on the frame-support at the bottom. I write in present tense, for one of those hives is still in use in my yard; and several times every summer, after reading how easy it is to handle the closed-end frame if one only knows how, I go and try to learn. To be more sure of success, I have had a colony of splendid Italians in the hive for nearly two years; but they get under the end-bars by twos, threes, and half-dozens; and as the frames go into place, one never fails to hear the bones crack. If the Heddon hive is made with a metal rest for the frames, I consider it a waste of time to discuss the question of easy manipulation of frames; it must be a manipulation of hives.

In all my experiments with frames there were two points kept constantly in view. For many reasons I desired a reversible frame; and because my bees were to be moved frequently I had determined that the frame should be fixed firmly in its place in the hive. The closed end frame answered these conditions, but its objectionable features outweighed its good points. At this stage of my investigations you illustrated the VanDeusen metal corner in GLEANINGS, and described the hive used by Mr. O. J. Hetherington, of East Saginaw, Michigan. I was favorably impressed with the device; and after experimenting with it a little, I began putting all my new swarms into hives supplied with the Hetherington frame. I am more than pleased with its working. It is more easily handled than any other frame in existence, and it is impossible for the bees to fasten it with propolis because its bearings are all metal, and are mere points. From each corner of the frame, two metal points project  $\frac{3}{8}$  of an inch, spreading slightly until they reach a width of an inch and a half, scant, at the widest part. The  $\frac{3}{8}$  projection spaces the end of the frame away from the end of the hive, and supports the frame by resting upon a strip of metal nailed to the lower edge of the end of the hive. The spread of the projections (or, rather, shoulders on the projections) spaces the frames from each other and from the sides of the hive. In lifting out a frame or returning it, it is impossible to roll bees between the end-bars and the ends of the hives; and when moving frames closer together the four conical shoulders make it a difficult matter to crush a bee between the combs, as is so often done with suspended frames. I can handle these frames much faster than I can suspended frames; and after hiving a new swarm, the hive can be carried to any part of the apiary, and put down with the assurance that every frame is in its proper place. To move an apiary, it is only necessary to shut the bees in the hives, and they are ready to be loaded on the wagon. I do not see how a better reversible frame could be made; for, top and bottom being alike, it makes no difference which side is up; the hives may even be stood on end for examination; a point of considerable importance when one is in a hurry.

I am not sure but I have one objection to this metal corner; and that is, that it spaces the combs  $1\frac{1}{2}$  inches from center to center. As yet it has given me no trouble on that score, but I believe I should like it better if the spacing were only  $1\frac{1}{8}$  inches. The wide spacing is an invitation to the bees to store rather more honey in the brood-chamber than I want there; but by shaving off the elongated cells and reversing the frames I have managed the matter very satisfactorily. With a large number of colonies this would be too much labor, and I have about arrived at the conclusion that I want the spacing reduced to  $1\frac{1}{8}$  inches.

Any one using a suspended frame can easily change to this without buying new frames, if the ones he has in use are one inch shorter than the inside of the hive. Saw off the projection of the top-bar, nail a metal corner on each corner of the old frame, and a folded piece of sheet iron on the bottom edge of the ends of the hive, and the work is done. The expense is but trifling, and it makes a hive that, in my estimation, is far in advance of any other now in use.

I may as well mention here, that I use a frame  $16\frac{1}{2}$  inches long and 7 inches deep, outside measure;

and it might be that, in handling a deeper frame of this kind I should find objections to it that my shallow frame has not developed. Two of my neighbors who have heretofore used the same frame I am now using have this year added one inch to its depth, and I shall have the opportunity of observing its workings.

Z. T. HAWK.

Audubon, Iowa, May 27, 1889

I am very glad indeed to get the above report; in fact, I have long wondered that we didn't hear more from that frame. I think, however, you will not like frames spaced at 1 $\frac{3}{4}$ . I have tried it pretty thoroughly; and unless your combs are absolutely straight like a board, even when filled with brood and capped over, you will have a great deal of trouble if you undertake to move frames from one hive to another, or even reverse or change ends with any frame. The combs will touch in places, or so nearly touch, that the bees can not get through; cells will be left vacant, brood will be destroyed, and constant labor will be involved in cutting down and building out—labor for the bees. The frame you have, I think will work better with the VanDeusen corners than a deeper or larger one.

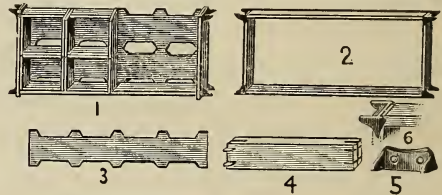
## RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

### THE HETHERINGTON REVERSIBLE FRAME.

**H**ANGING to observe that our friend Z. T. Hawk was using the frame mentioned above, I wrote to him asking him to prepare an article for GLEANINGS, setting forth his views and experience with reference to closed-end frames, and the Hetherington reversible frame in particular. He has done so, and the article above covers my own feelings in the matter so perfectly that but little further comment is necessary. While I recognize some of the very decided advantages of the closed-end frame, I have been no less sensible of their defects, both from a theoretical and practical standpoint. The more I have been thinking of the matter, the more I feel just at present that the Hetherington reversible frame comes as near filling the bill as any thing that has ever been gotten out. It not only retains most if not all the advantages of the closed-end frames, but it obviates some of their most serious defects, so it seems to me; and friend Hawk, from a practical standpoint, you will notice, is of the same opinion. For the production of comb or extracted honey, in any case where the colonies are to be moved to any considerable extent, to and from out-apiaries, it seems to me (although I may change my mind very shortly) that something better than the ordinary suspended frame is needed. I have not forgotten the advantages of the hanging frame, such as the lateral movement, spreading of frames in winter, and contracting again in the spring. By turning to Question 117, April 1, page 270, where the problem of wood bearings versus metal rabbets is involved, with reference to the hanging frame, a great

majority of the respondents prefer the wood bearings. Why? For the very reason that the hives can be moved about without special means for holding the frames at fixed distances; but to get this feature it is necessary to incur considerable inconvenience. If the frames are fixed with propolis, they must be removed necessarily with difficulty, to say nothing of an occasional snap, and, of course, disturbance from the bees, and more or less stings. I do not believe that apiarists in general would tolerate the regular closed-end frames, although I do not deny the fact that some of our best and most extensive bee-keepers use and prefer them; but I do think that a frame at fixed distances is a thing we need, providing that we can at the same time secure perfect mobility. Perhaps the principal reason why we dropped the Hetherington reversible frame was because it could not be adapted to the Simplicity body, with its beveled edge. This frame, however, will fit the new Dovetailed hive with but very little alteration. A strip of strap iron or heavy tin, nailed to the bottom inside edge of each end of the hive will form the support for the Hetherington frame. This support will not interfere with hanging frames. To give you a better idea of the reversible frame, I reproduce here an engraving which appeared on page 332 of GLEANINGS for 1884.



THE METAL-CASTING REVERSIBLE FRAME.

1. Metal corners attached to a wide frame, showing how it can be used without any top-bar.
2. Brood-frame, with metal corners attached to each corner.
3. Metal corners detached from the frame, showing nail-holes.
4. End-bar of wide frame, showing cuts necessary to take in metal corner.
5. Metal corner in place, inserted in a saw-cut in the end-bar.

The figures 2, 6, and 5, will make the idea plain. No. 5 we nail upon the frame, as shown in figure 6. The casting not only spaces the frames the proper distance apart, but keeps them at a proper distance from the ends of the hive. As the place of contact is a mere point, propolis can play no part. I have tried these frames considerably, and know of nothing that reverses any prettier or nicer than these; and when they drop down upon the strap-iron support, there is but very little chance of crushing bees. I do not believe it ordinarily pays to go to the expense of reversing; but if we can get reversing with *fixity* of distances at the same time, well and good. All of the combs in the Hetherington reversible frame are filled out nice and full, and will almost do to ship without wires. We shall not at present offer these frames for sale; but what I want to know is, have any others of our subscribers tested it? If so, let us hear from them. What I want to know particularly is whether I am on the right track for something better.



# GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,  
EDITOR AND PUBLISHER,  
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 15, 1889.

He that planted the ear, shall he not hear? he that formed the eye, shall he not see?—PSALM 91: 9.

## HONEY MARKET.

By glancing at the honey market, for a few numbers back, we observe that the old honey has been nearly cleaned out, and that there is a demand for new honey. After the old stuff has been all moved off, we shall hope for better prices, even with a good honey-flow.

## DZIERZON.

THE following item, from the *Revue Internationale*, of Nyon, Switzerland, will be of interest to our readers:

Dzierzon, born in 1811, is still living a retired life in Brieg, Silesia, where he has been for several years. The University of Munich has awarded him the diploma of Doctor of Philosophy, as a reward for his numerous scientific works, and for his theory in regard to parthenogenesis.

## THE BUSH LIMA BEAN.

May be you think I have got over my enthusiasm; but I tell you, I have not. A good many thousands of the Henderson bush lima beans are now above ground; but, like the seed they sprang from, the plants are so diminutive they look like Lilliputian beans. Not so with the Kumerle. It looks exactly like a good, strong, healthy lima bean. It is true, it may climb poles, as friend Henderson has suggested; but if they do undertake to climb poles, our friend Thorburn had better climb a pole too, or else some bushy tree, where he can get himself out of sight.

## EXTENSIVE BEE-KEEPERS.

As we have said many times before, our space is crowded; but we always have lots of room—in fact, we make it for bee-keepers of large experience, and those who own colonies by the several hundreds. We are constantly striving to make improvements in various ways in GLEANINGS; and our latest effort is to secure articles from the most extensive bee-keepers in the land, on live topics. We take pleasure in the fact that we have added to our columns such men as A. E. Manum, S. I. Freeborn, and others. Those who are large bee-keepers, and, as a matter of course, successful, can hardly fail to give us some practical hints.

## ANSWERS TO QUESTIONS FROM THE A B C CLASS.

It will be noticed elsewhere, that we have started a department for the A B C class. Most of the questions are asked by beginners. Some questions, however, are asked by the veterans, and are answered in this department because they are not only of general interest, but they are of vital interest to beginners. Although our A B C book is very comprehensive, it can not, from the nature of the case,

cover all things under all circumstances. It will be observed, that the question itself is omitted, the query being implied in the answer. We do this, because it saves space, because almost all of the answers imply the question, and hence the specific wording of the question before would be not only useless but unnecessary.

## THE ENCYCLOPEDIA BRITANNICA—A CORRECTION.

SINCE our article on page 443 of our last issue was printed, concerning manufactured comb honey, as published in the American Supplement of the *Encyclopedia Britannica*, we learn that the J. M. Stoddart Co., Limited, of Philadelphia, were not the publishers of the Supplement in question, containing the slander on the bee-keeping industry. As Dr. Nysewander, who furnished us the facts, did not give the name of the publishers, we consulted an American edition of the *Britannica*, and found that the publishers were the J. M. Stoddart Co., Limited, Philadelphia. Supposing them to be the only publishers of the American edition, we concluded a little too hastily that they were responsible for the false statement. We here desire to publicly exonerate them from all connection in the matter. We have since learned that the publishers of the Supplement are Messrs. Hubbard Bros., 723 Chestnut St., Philadelphia, Pa., and have written them.

## OUT-APIARIES AND MIGRATORY BEE-KEEPING.

WE are glad to note the disposition on the part of our correspondents to discuss the matter of out-apiaries in all its bearings. There is more to be developed in this line than we are perhaps aware. Migratory bee-keeping, a kindred department of the industry, will doubtless receive more attention in the future. This fact has been proven over and over again; namely, that often a difference of two or three miles makes a very decided difference in the supply of nectar. H. R. Boardman, of East Townsend, O., says in some of his out-apiaries last summer his bees were almost on the verge of starvation; while two or three miles away, in another apiary, bees were very busy storing surplus. Migratory bee-keeping means moving bees to and catching any flow of honey which may suddenly develop in any locality where there are but few bees. Scale hives, located in several localities, with some one to report immediately any favorable change of the pointer, would keep the apiarist posted. Who can give us some experience in this line? Perhaps H. R. Boardman will favor us with an article on this subject.

## CHILLED AND FOUL BROOD: HOW TO DISTINGUISH ONE FROM THE OTHER.

WITHIN the last few days, during the damp cool weather, a great deal of chilled and foul brood has been reported, and we have had a good deal of the former. Quite a number who have written to us in regard to their discovery have come to the conclusion rather hastily that they had the real foul brood, when the reported symptoms showed that they had only chilled brood. While foul brood is getting to be more and more prevalent, we fear, in the country, most of the alleged foul brood is only chilled, and, of course, not infectious. Perhaps we should remark right here, that chilled brood, in a great many points, resembles the virulent form. The former may be recognized by the following: A cold spell of weather comes on; the bees contract the cluster, inside of the outside limits of the brood,

Sometimes one or two frames are left high and dry, so to speak. The heads of the unsealed larvæ in these combs will first turn black. The grub itself gradually sinks down; and after a time, unless the bees carry it out, it will turn to a grayish pulpy mass. If still neglected by the bees, it will assume a yellowish color; but, unlike foul brood, there is no ropiness. The characteristic brown color, as well as the glue-pot odor, is also absent. The capings are sunken and are often perforated. We are afraid that there are some who have unwisely concluded that they had foul brood, and have gone to the expense of treating chilled brood, for the virulent type. Some of the alleged specifics, we fancy, such as coffee, sulphuric acid, etc., have had to do with only chilled brood. Of course, this will disappear of itself; but the coffee and sulphuric acid get the credit, and Brown is offended because we have no faith in his remedy.

#### MARKETING OUR STRAWBERRIES, ETC.

AT this date, June 13, strawberries are ripening pretty fairly; but I am pleased to tell you that they go off just as quick as they are ripe, at 15 cents a quart. It is true, berries are sold around us for 10 cents a quart; but I will tell you some of the reasons why we get 15 cents. The picking is all done by the school children, before school in the morning and after school in the afternoon. They are picked, and carefully placed in new pint boxes, made by the Disbrow Manufacturing Co., Rochester, N. Y. We give good heaping measure, and most of the berries are great big ones. Those picked at night are placed on the market-wagon, the wagon being placed in the fruit-house. Well, instead of shutting the building up with doors, both the north and south ends are simply closed with wire netting, so the air has free access. The little boxes of berries are placed 16 in a box, made expressly for them (these baskets are figured in our book, *What to Do*). The wagon starts out before 6 o'clock in the morning. The boys also start out to pick berries about the same time; and by school time the wagon is generally sold out, and comes around and collects the berries just picked; so you see we can tell our customers, "These berries were picked this morning." We usually get the pint baskets back again; but if it is not convenient, we let them go with the berries. Another thing that makes them sell is the extra large size. Why, it is almost like eating peaches to take one in your hand. Some of the farmers in the vicinity of Medina are complaining that they can not make any money by raising grain crops, and so they have started in on tobacco. It takes just as much manure and cultivation to raise tobacco as it does to raise strawberries. One kills, and the other cures. Yes, even Christian people are engaged in the tobacco-traffic. I asked one of the pastors, when told that his people were engaged in raising tobacco, what professing Christians had to say for themselves. He replied, "Their only plea is, 'There is money in it.'" Woe betide the follower of Christ when he gets on such ground as that. "Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you."

#### BAD WEATHER.

LETTERS from all parts of the country mention the effects of the bad stormy weather. Many say their bees are starving; others, that there is no honey coming in, and colonies are liable to starve.

Within the last few days, the weather (June 13th) has so materially changed for the better in our locality that we hope that this discouraging outlook may soon be reversed. In fact, we are already in receipt of reports saying that honey is beginning to come in at a good rate.

## SPECIAL NOTICES.

#### COPPER TEA-KETTLES AND BOILERS.

Since the collapse of the French copper syndicate, and the consequent decline in the price of copper in all its forms, articles manufactured from copper can now be bought at lower prices than for some time. We have accordingly put in a stock of planished copper tea-kettles and wash-boilers, which we can furnish at the following prices:

No. 8, copper tea-kettles,	\$1.50 each;	\$12.50 for 10.
No. 9, " "	1.75 each;	13.50 " 10.
No. 8, " boilers,	3.50 each;	30.00 " 10.
No. 9, " " "	4.00 each;	33.00 " 10.

These are all tinned inside, and planished bright outside. The boilers include a tin cover. You may have the tea-kettle nickel-plated outside for 30 cts. each more. If carefully handled, copper utensils should last a lifetime, as they will not rust out like tin, nor chip off like agate or granite ware. They are also chemically safe to use.

#### DECLINE IN PRICE OF WIRE NAILS.

The manufacturers of wire nails having adopted a new list of prices, making important changes, we also change our prices accordingly. You will notice, by comparing our new table below with the old one published in our catalogue, that, on all sizes there is a decline in prices, and this is especially noticeable in the very small sizes. You notice, also, we introduce a new column, giving price of 25-lb. boxes, as we now keep in stock both 25 and 50 lb. boxes, which go at the same rate. Taking the prices right through, there is a marked decline in price.

#### PRICE LIST OF FINE FLAT-HEAD WIRE NAILS.

The  $\frac{1}{4}$ ,  $\frac{3}{8}$ , and  $\frac{1}{2}$  inch are also put up in  $\frac{1}{2}$ -lb. packages, at 15, 12, and 10c per package.

Length of Nails.	No. of Nails per lb.	Size of Wire.	Wgt of 5-cent Pkgs.	Price.			
				1 lb.	10 lbs.	25 lbs.	50 lbs.
$\frac{1}{4}$ in.	17,777	No. 21	1 oz.	25 ct.	\$2.40	\$6.00	\$12.00
$\frac{3}{8}$ "	10,000	" 20	2 "	20 "	1 80	4 00	15.20
$\frac{1}{2}$ "	7,500	" 20	2 "	18 "	1 60	3 40	12.80
$\frac{3}{8}$ "	4,269	" 19	4 "	15 "	1 30	2 75	10.40
$\frac{1}{2}$ "	2,750	" 18	4 "	13 "	1 05	2 25	8.00
$\frac{3}{8}$ "	2,350	" 18	4 "	12 "	1 00	2 00	7.40
1 "	2,000	" 18	4 "	11 "	.90	1 85	6.80
$1\frac{1}{4}$ "	1,200	" 17	8 "	10 "	.80	1 65	5 90
$1\frac{1}{2}$ "	760	" 16	8 "	9 "	.70	1 50	5.30
$1\frac{3}{4}$ "	500	" 15	8 "	9 "	.70	1 50	5.30
2 "	350	" 14	8 "	8 "	.70	1 40	5.00
$2\frac{1}{4}$ "	238	" 13	8 "	8 "	.60	1 30	4.70
$2\frac{3}{4}$ "	164	" 12	8 "	8 "	.60	1 25	4 40

Five lbs. will be charged at the 10-lb. rate; 50 lbs. at the 25-lb. rate. By mail, 18 cts. per lb. extra for postage and packing.

## KIND WORDS FROM OUR CUSTOMERS.

Your Dovetailed hive can not be surpassed for workmanship. Freight charges were very moderate, being only \$1.32 for 295 pounds of stuff.

Sassafras, Md., June 2, 1889. R. J. TOWNSEND.

#### THAT WHEELBARROW.

The goods you sent me came in due time, and I wish to say I am very much pleased with that wheelbarrow. It is so light and yet so strong, and runs so easy, it is ahead of anything in that line I ever saw. The other things are all right.

Greene, Ia., June 2, 1889. GREEN R. SHIRER.



The goods shipped May 27th came yesterday all right. Perhaps you don't know that the beautiful celery-plants you sent me cost only about half as much as they would in Chicago, near by. I am so pleased with this 65-cent paper on which I am now writing, that I ask you to please save 6 reams more of it, to be sent some time with other goods. I thank you worse than ever for calling my attention to it. I wonder if you're having winter at Medina. Bees are starving here.

Marengo, Ill., June 1, 1889.

C. C. MILLER.

#### THE SOLAR WAX-EXTRACTOR AND THE FLOUR-RE-CEPTACLE.

Accept my best wishes for the solar extractor and flour-receptacle. They are just splendid; and the way they were packed, not a scratch on them. I have tried the extractor with some very tough black combs, and find it works beyond my expectations. The flour receptacle is a surprise for my better half, she being away visiting her mother in Key West. I know she will be delighted with it; it is the first one here on our river. I think when the folks see it you will have more orders.

Manatee, Fla., May 28, 1889.

D. LLOYD.

### FOR SALE CHEAP.

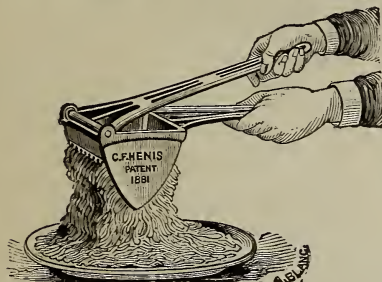
200 LANGSTROTH and SIMPLICITY HIVES, some new and in the flat; a lot of empty comb, a Novice extractor, and other bee-fixtures, which I will sell cheap. Write for particulars. Reasons for selling. I am out of the business. 11tfdb **W. J. FRANCISCO, Marshall, Mich.**

In responding to this advertisement mention GLEANINGS.

TESTED Italian queens, limited number, \$1.25 each. Frank Benton's imp. queens, \$4.00 each. S. F. REED, N. Dorchester, N. H.

TESTED ITALIAN QUEENS, \$2.00. UNTESTED, AFTER JUNE 1, \$1.00. PRICE LIST FREE. R. W. TURNER, Medina, O.

### Fruit-Press & Vegetable-Strainer.

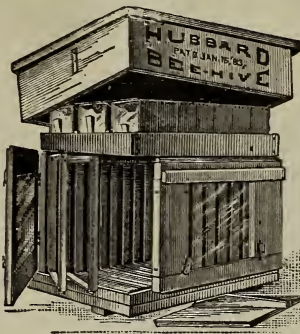


Reduced to Only 25 Cts.; \$2.75 per Dozen.

We have been using and selling this little implement since February. We are so well pleased with it, and the words of customers have been so full of praise, that we feel confident in saying that no housekeeper would be without one a single week if they knew its value. You can not imagine what a tempting dish you can make of potatoes till they have passed through this press. They are simply delicious. Some of our folks would scarcely ever eat a potato till we began using the press, and now they like them. The fruit season is just coming; and if the press proves as valuable in this capacity as for mashing potatoes, it should be as indispensable to the home as a rolling-pin or any of the common utensils found in every home. Believing that so good an article should be within the reach of all, we have bought 5 gross in order to get them at a price to enable us to sell them for a quarter by handling for a small profit. The usual price is 40 or 50 cts. Our price now is only 25 cts. each; 5 for \$1.15, or \$2.75 per dozen; \$7.00 per box of 3 dozen. By mail, 20 cts. each extra.

A. I. ROOT, Medina, Ohio.

## FORT WAYNE, IND.



CIRCULARS FREE. ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

G. K. HUBBARD, 277 S. HARRISON ST., FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.

10 For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied. Mention GLEANINGS. 7-12db

### BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece  $4\frac{1}{4} \times 4\frac{1}{4}$  sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 11tfdb

G. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

### HONEY, BEES, QUEENS, SUPPLIES.

Catalogue Free.

OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

In responding to this advertisement mention GLEANINGS.

### CARNIOLAN QUEENS

From imported mothers. Untested queens, \$1.00; tested queens, \$2.00. J. B. KLINE'S APIARY, Topeka, Kansas.

7-10db

#### IF YOU ARE IN WANT OF

### BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

OLIVER HOOVER & CO.,

4tfdb

Snydertown, Pa.

### BEE-KEEPERS' SUPPLIES

#### SAVE FREIGHT.

#### BUY YOUR SUPPLIES NEAR HOME.

Shipping facilities good. Send for price list of every thing needed in the apiary. 7tfdb

C. P. BISH, St. Joe Station, Butler Co., Pa.

In responding to this advertisement mention GLEANINGS.

### JAPANESE BUCKWHEAT!

By freight or express, not prepaid.

Per bu., \$2.00; per  $\frac{1}{2}$ -bu., \$1.25; per peck, 75 cts.; 5 lbs., 50 cts; per lb. by mail post-paid, 25 cts. Address

John C. Gilliland,

Bloomfield, Greene Co., Ind.

5-14db

In responding to this advertisement mention GLEANINGS.





# GLEANINGS IN BEE CULTURE.

## Books for Bee-Keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, *postpaid*, on receipt of price.

In buying books, as every thing else, we are liable to disappointment, if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them *for sale*, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a \*; those I *especially* approve, \*\*; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §.

### BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

8   Bible, <i>good print</i> , neatly bound.....	25
10   Bunyan's Pilgrim's Progress**.....	35
6   First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50c. Two copies will be sold for 75 cents. Postage six cents.	
5   Harmony of the Gospels.....	35
3   John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*.....	10
1   Gospel Hymns, consolidated Nos. 1, 2, 3 and 4, words only, cloth, 10c; paper.....	05
2   Same, board covers.....	20
5   Same, words and music, small type, board covers.....	45
10   Same, words and music, board covers.....	75
3   New Testament in pretty flexible covers.....	05
5   New Testament, new version, paper cover.....	10
5   Robinson Crusoe, paper cover.....	20
15   Story of the Bible**.....	1 00
A large book of 700 pages, and 274 illustrations. Will be read by almost every child.	
5   The Christian's Secret of a Happy Life**.....	25
8   Same in cloth binding.....	50
1   "The Life of Trust," by Geo. Muller**.....	25
1   Ten Nights in a Bar Room, by T. S. Arthur*.....	15

### BOOKS ESPECIALLY FOR BEE-KEEPERS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well, by the amount required for postage on each.

Postage   [Price without postage.]	
12   A B C of Bee Culture** Paper.....	88
15   A B C of Bee Culture** Cloth.....	1 10
5   A Year Among the Bees, by C. C. Miller **.....	70
14   Bees and Bee-keeping, by Frank Cheshire, England, Vol. I, **§.....	2 36
21   Same, Vol. II, **§.....	2 79
or, \$5.25 for the two, post paid.	
1   Bees and Honey, by T. G. Newman.....	1 00
15   Cook's New Manual ** Cloth.....	1 35
5   Doolittle on Queen Rearing**.....	95
2   Dzierzon Theory**.....	10
1   Foul Brood; Its management and cure; D. A. Jones**.....	09
1   Honey as Food and Medicine.....	5
10   Langstroth on the Hive and Honey-Bee***	1 40
15   Langstroth Revised, by Ch. Dadant & Son**.....	1 85
10   Quinby's New Bee-Keeping**.....	1 40
10   Queen-Rearing, by H. Alley*.....	1 00
4   Success in Bee Culture, by James Heddon*.....	46
1   The Production of Comb Honey, by W. Z. Hutchinson**.....	25
1   The Apiary; or, Bees, Bee-Hives, and Bee Culture, by Geo. Neighbour & Sons, England*§	1 75
1   British Bee-Keeper's Guide - Book, by Thos. Wm. Cowan, Esq., England*§.....	40
3   Merrybanks and His Neighbor, by A. I. Root.....	25

### MISCELLANEOUS HAND-BOOKS.

5   A B C of Carp Culture, **.....	35
3   A B C of Potato Culture, Terry**.....	35
This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations.	
5   An Egg-Farm, Stoddard**.....	45
1   Barn Plans and Out-Buildings*.....	1 50
1   Cranberry Culture, White's.....	1 25
1   Canary Birds; paper, 50c; cloth*.....	75
1   Draining for Profit and Health, Warring.....	1 50
5   Eclectic Manual of Phonography; Pittman's System; cloth.....	50

26   Fuller's Practical Forestry*.....	1 40
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10 | Farming For Boys\*..... 1 15  
This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

10   Fuller's Grape Culturist**.....	1 40
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7   Farm, Gardening, and Seed-Growing, by Francis Brill**.....	90
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This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

10   Gardening For Pleasure, Henderson*.....	1 40
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While "Gardening for Profit" is written with a view of making gardening *PAY*, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 216 pages and 134 illustrations.

12   Gardening for Profit, ** New Edition.....	1 85
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This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward market-gardening and the profitable and remunerating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

8   Gardening for Young and Old, Harris**.....	90
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This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as to old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

1   Gray's School and Field Book of Botany... ..	1 80
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5   Gregory on Cabbages; paper*.....	25
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5   Gregory on Squashes; paper*.....	25
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5   Gregory on Onions; paper*.....	25
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The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

10   Household Conveniences.....	1 40
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2   How to Propagate and Grow Fruit, Greel*.....	25
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5   How to Make Candy**.....	45
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10   How to Keep Store*.....	1 00
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10   Irrigation for the Farm, Garden, and Orchard, Stewart*.....	1 40
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This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3   Maple Sugar and the Sugar-Bush,**.....	35
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By Prof. A. J. Cook. This was written in the spring of 1887, at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest sugar and maple syrup, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

10   Money in The Garden, Quinn*.....	1 40
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1   Poultry for Pleasure and Profit**.....	10
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11   Practical Floriculture, Henderson*.....	1 35
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10   Peach Culture, Fulton's.....	1 50
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10   Profits in Poultry.....	90
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2   Silk and the Silkworm.....	10
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10   Small-Fruit Culturist, Fuller*.....	1 40
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3   Strawberry Culturist, Fuller*.....	15
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10   Success in Market-Gardening*.....	90
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This is new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

10   Talks on Manures*.....	1 90
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This book, by Joseph Harris, is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2   The Carpenter's Steel Square and its Uses; Hodgson; Abridged.....	15
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2   Treatise on the Horse and his Diseases.....	10
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10   The New Agriculture, or the Waters Led Captive.....	1 00
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3   Winter Care of Horses and Cattle.....	40
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This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages, and 4 cuts.

8   What to Do, and How to be Happy While Doing It, by A. I. Root.....	50
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3   Wood's Common Objects of the Microscope**.....	47
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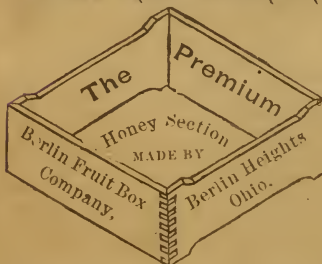
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